

THE ATHENÆUM

Journal of English and Foreign Literature, Science, and the Fine Arts.

No. 884.

LONDON, SATURDAY, OCTOBER 3, 1844.

PRICE
FOURPENCE
(Stamped Edition, 8d.)

For the convenience of Subscribers residing in remote places, the weekly numbers are reissued in Monthly Parts, stitched in a wrapper, and forwarded with the Magazine. Subscriptions for the Stamped Edition for the Continent, for not less than Three Months, and in advance, are received by M. BAUDRY, 3, Quai Malaquais, Paris, or at the Publishing Office, 14, Wellington-street North, Strand, London. For France, and other Countries not requiring the postage to be paid in London, 28s. or 11. 2s. the year. To other Countries, the postage in addition. [JAMES HOLMES, TOOK'S COURT, CHANCERY LANE.]

KING'S COLLEGE, London.—GENERAL INSTRUCTION IN THE APPLIED SCIENCES.—The CLASSES in this Department (the object of which is to provide a thoroughly practical education for those who are afterwards to be engaged in the business pursuits of active life), were opened on Tuesday, the 1st instant. This department provides also (in addition to the general course), a complete system of Elementary Instruction in Engineering and Architecture. Detailed information may be obtained of the Secretary.

CHEMISTRY.—THE WINTER COURSE OF LECTURES AND DEMONSTRATIONS ON THE THEORY AND PRACTICE OF CHEMISTRY, by Professor DANIELL, D.C.L., and WM. MILLER, M.D., will COMMENCE on MONDAY, the 7th October, at 8 p.m., and will be continued on each succeeding Tuesday, Thursday, Friday, and Monday, at the same hour, to the end of the Course.

ENGINEERING AND ARCHITECTURAL CONSTRUCTIONS.—Professor HOSKING will COMMENCE his COURSE on the ARTS OF CONSTRUCTION in connection with Civil Engineering and Architecture, on TUESDAY, the 8th instant, at Four o'clock in the Afternoon, and will continue it at the same hour on Friday, and on every following Tuesday and Friday throughout the Session.

GEOLOGICAL MINERALOGY.—MR. J. TENNANT, F.G.S., will COMMENCE a COURSE of LECTURES on MINERALOGY, with a view to facilitate the study of GEOLOGY and of the application of Mineral Substances in the ARTS. The Lectures will be illustrated by an extensive Collection of Specimens, and will begin on WEDNESDAY MORNING, the 9th of October, at Nine o'clock. They will be continued on each succeeding Wednesday. Further particulars may be obtained at the Secretary's Office.

UNIVERSITY COLLEGE, LONDON.—FACULTY OF ARTS AND LAWS, Session 1844-45.—The SESSION will COMMENCE on October 15th, when Professor MALDEN will deliver an INTRODUCTORY LECTURE at Ten o'clock precisely.

ORIENTAL LANGUAGES.—Professor Falconer, A.M. ENGLISH LANGUAGE AND LITERATURE.—Professor Latham, A.M. FRENCH LANGUAGE AND LITERATURE.—Professor Merle, A.M. ITALIAN LANGUAGE AND LITERATURE.—Professor Peppi, A.M. SPANISH LANGUAGE.—Teacher, Mr. Glide Tejada.

GERMAN LANGUAGE.—Teacher, Mr. Wittich. **COMPARATIVE GRAMMAR.**—Professor Key, A.M. **MATHEMATICS.**—Professor De Morgan. **NATURAL PHILOSOPHY AND ASTRONOMY.**—Professor Potter, A.M.

CHEMISTRY.—Professor Graham. **ARCHITECTURE.**—Professor Donaldson. **GEOMETRY.**—Professor Peppi. **DRAWING IN ALL ITS BRANCHES.**—Teacher, Mr. Moore.

BOTANY.—Professor Lindley, Ph.D. **ZOOLOGY, RECENT AND FOSSIL.**—Professor Grant, M.D. **PHILOSOPHY OF MIND AND LOGIC.**—Professor the Rev. J. Hopps, Ph.D.

ANCIENT AND MODERN HISTORY.—Professor Cressley, A.M. **LAW.**—Professor Peppi. **JURISPRUDENCE.**—Professor Hargreave, B.L.

FLAHERTY SCHOLARSHIPS. Flaherty Scholarships of 45l. per annum will be awarded in the Session of 1844-45, by examiners to be appointed by the Council, to the best proficient among the Students of the College of two years' standing, under the age of twenty-one years, as follows:—A Scholarship, tenable for four years, in mathematics and natural philosophy, and an Extraordinary Scholarship, tenable for three years, in classics. The examination will take place between the 7th and 15th of January. A Scholarship will be awarded in January, 1846, for classics, and in January, 1847, for mathematics. Printed copies of the regulations concerning these Scholarships may be had on application at the office.

P. S. CAREY, Dean of the Faculty.
CHAS. C. ATKINSON, Secretary to the Council.
The Session of the Faculty of Medicine commences on the 1st of October.

SCHOOL OF CHEMISTRY AND NATURAL PHILOSOPHY, ROYAL POLYTECHNIC INSTITUTION, London: under the direction of JOHN IVAN, L.L.D. M.D., and Prof. RACHHOFFNER, Ph.D. M.A.—The Course of CHEMICAL LECTURES and Practical Demonstrations for general Students, Agriculturists, &c. under the direction of Dr. JOHN IVAN, will commence on the 7th of October; the STEAM NAVIGATION CLASS for NAVAL OFFICERS on the 8th; the Class for RAILWAY ENGINE DRIVERS on the 8th. The CITY AND NATURAL PHILOSOPHY, embracing ELECTRICITY, will commence on the 7th, illustrated by the extensive Apparatus of the Institution. A Syllabus of the various Classes may be had at the Institution.

R. L. LONGBOTTOM, Secretary.

DR. G. A. MANTELL HAS REMOVED FROM Clapham Common to No. 19, CHESTER-SQUARE, PIMLICO; and may be consulted at home every morning from half-past Nine till Twelve.

TO CONNOISSEURS OF THE FINE ARTS.
SIGNOR ANGELO BIENAIMÉ, SCULPTOR, begs to announce that he has REMOVED to larger and more commodious Premises (No. 23, Newman-street, Oxford-street), where he has just received from Italy a collection of the finest Works in Ancient and Modern Sculpture, consisting of Figures, Groups, and Busts, carved in the purest marble, and in the most perfect taste, suitable as ornaments for galleries, halls, libraries, or drawing-rooms; to which he begs a visit from connoisseurs and lovers of the Fine Arts.

TO BOOKSELLERS' ASSISTANTS.—WANTING, a respectable and steady Person, of good manners, to attend the Retail part in a Shop at the West End. An excellent character, some year's experience in business, and a good knowledge of the French language, is indispensable. Apply, if by letter post-paid, to Mr. E. at Mr. Porch's Fancy Repository, 17, Rathbone-place, Oxford-street.

A GENTLEMAN is desirous of ENGAGING a TUTOR for his two sons, 9 and 10 years of age. A Clergyman of the Church of England would be preferred. He would be required to give his pupils a sound English and classical education, and to prepare them for the University of Oxford. As a liberal salary will be given and a comfortable home provided, the advertiser will not attend to any applications but such as can bear the strictest inquiry. Communicate, addressed B. H. W., to be sent (post-paid) to Mr. Lowe, stationer, Abchurch-lane, City.

FREE EXHIBITION.—ART-UNION OF LONDON.—The Works of Art selected by the Prizeholders of the year 1844, exhibiting at the GALLERY of the SOCIETY OF BRITISH ARTISTS, 15, Hanover-street, Pall Mall East, will be OPEN to the public generally during the whole of next week, from Ten o'clock till Five each day. The Subscription Lists are now open.

BRITISH ASSOCIATION.—Messrs. REEVE, Brothers, beg respectfully to introduce themselves to the Council and Members of the British Association as LITHOGRAPHERS, LETTER-PRESS PRINTERS, and PUBLISHERS of Scientific Works. Having both the Letter-press and Illustration Departments in operation on their own premises, with artists, colourers, printers, compositors, and readers under constant superintendence, they possess the facilities for the complete production of illustrated technical works, with economy, and very little trouble to the author.—3, King William-street, Strand, (near Charing-cross).

TO THE NOBILITY, GENTRY, AND CLERGY OF ENGLAND. STAINED GLASS.

ROYAL COMMISSION OF PAINTED GLASS. The Subscribers, whose Specimens of Painted Glass and Designs for the Windows of the New Houses of Parliament have received the special approbation of the Royal Commission, (they being the first named in the Report of the Committee,) are prepared to furnish DESIGNS adapted to every Style of Ecclesiastical or Domestic Architecture, and to execute work to any extent within the shortest possible period.

DECORATIVE-ART SOCIETY, 11, Davies-street, Berkeley-square.—On WEDNESDAY, 9th of October, at Eight o'clock, will be READ the FIRST PART of a Paper "ON PAPER HANGINGS."

The Second Edition of a Paper on "DESIGN," read before the Society, may be had of F. Calder, Bookseller, 19, Oxford-street, price 6d.

NOTICE TO INVENTORS. OFFICE FOR PATENTS OF INVENTIONS AND REGISTRATIONS OF DESIGNS.

THE PRINTED INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Designs Act, may be had by applying personally (or by letter, prepaid), to Mr. ALEXANDER PRINCE, at the Office, 14, Lincoln's Inn-fields, London.

PHILOSOPHICAL APPARATUS.—THORNE, THORNTHWAITE and WOOD beg to inform their Friends and the Public that they have succeeded to the Business of E. PALMER, in which they have been the principal Assistants and Manufacturers since its first establishment, and which business will in future be carried on by them at 123, Newgate-street, three doors from Giltspur-street.

NEW BOOKS SENT FOR PERUSAL. By RAILROAD and STEAM VESSELS. To all parts of the Coast and Kingdom from Hall's English and Foreign Public Library, Holles-street, Cavendish-square, London. Terms Gratis and Post-free on application. An unlimited supply of New Books is furnished to the public, as soon as the first demand has subsided, may be purchased by the Subscribers, if desired, at half-price.

THE DUPLICATE CATALOGUE of such Works, at present on sale, is now ready, and may be had Gratis and Post-free on application.

LIBRARY BOOKS AT VERY REDUCED PRICES. Now ready, Gratis and Post-free.

BULL'S DUPLICATE SELECTIONS, a Catalogue of Popular Modern Works withdrawn from Bull's English and Foreign Public Library, Holles-street, Cavendish-square, London. Sent gratis to the public, as soon as the first demand has subsided, may be purchased by the Subscribers, if desired, at half-price.

READING AND BOOK SOCIETIES. Now READY—*Delivered Gratis.* **A NEW PLAN FOR READING AND BOOK SOCIETIES** THROUGHOUT THE KINGDOM.

This Plan provides an unlimited Supply of Standard Works—all the New Books—and the right of Members to purchase any work desired at one-half the published price. Delivered Gratis, and sent post-free to order, inclosing two stamps, addressed to Mr. BULL, Librarian, 18, Holles-street, Cavendish-square. Also, Gratis and Post-free, BULL'S NEW CATALOGUE of LIBRARY DUPLICATES, at very reduced prices.

TO FAMILIES AND BOOK SOCIETIES. **CHURTON'S LIBRARY, 26, HOLLES-STREET, CAVENDISH-SQUARE,** offers the following peculiar advantages to Subscribers:—

1. A lower scale subscription than similar establishments in every department.
2. The most extensive supply of NEW PUBLICATIONS in every department.
3. Catalogue and Box provided gratis.
4. A weekly supply of NEW FRENCH and GERMAN Publications.
5. The exchange of COUNTRY SUBSCRIBERS' supplies within 24 hours of their receipt.
6. A discount of 10 per cent. from the CATALOGUE of DUPLICATES, already in many instances marked at less than one-third the published prices.

TERMS:—
The Year 3 3 0 .. 4 4 0 .. 5 5 0 or 10 10 0
Half-Year .. 1 10 0 .. 2 12 0 .. 3 3 0 or 6 6 0
Quarter .. 1 1 0 .. 1 11 6 .. 1 16 0 or 3 3 6
GRATIS and POST FREE.—Hints to Secretaries of Reading Societies, and Catalogue of Library Duplicates.

SINGING CLASSES, on the METHOD OF WILHELM.—Under the sanction of the Committee of Council on Education.—*APOLLOCON ROOMS.* Director.—MR. JOHN HULLAH.

CLASS No. 37, FOR LADIES, will commence TO-MORROW MONDAY, October 7, at a quarter-past Five o'clock. Terms, 2s. for the Course, or 5s. per Month. Teachers, 15s. for the Course, or 2s. 6d. per Month.

CLASS No. 38, FOR GENTLEMEN, will commence on MONDAY, October 14, at half-past Six o'clock. Terms, same as Class No. 37.

HOWE, LEONARD & CO., AUCTIONEERS and COMMISSION MERCHANTS, BOSTON, UNITED STATES, offer their services to the London Trade for the Sale at Auction of Prime Sale of Books, Paintings, Artists' Materials, Articles of Taste or Virtù, Fancy Goods, &c. &c. Agency for any description of Manufactured Goods solicited. Consignments of Old or New Books for Sales at Auction solicited.

The most satisfactory references can be obtained on application to Mr. John Miller, Bookseller, Henrietta-street, Covent-garden.

Just published, price 1s. cloth, with 5 Plates.
FARADAY'S EXPERIMENTAL RESEARCHES IN ELECTRICITY, Vol. II. Also, on sale, Vol. I. price 18s. with 18 Plates. London: R. & J. E. Taylor, Red Lion-court, Fleet-street.

ROSE'S BIOGRAPHICAL DICTIONARY. Just published, Part XXVII. of a NEW GENERAL BIOGRAPHICAL DICTIONARY, projected and partly arranged by the late Rev. HUGH JAMES ROSE, D.D.

FALLACIES OF THE FACULTY, with the Principles of the Chronothetic System of Medicine. By Dr. DICKSON. Price 2s. 6d.

"Sparkling originality in a highly clever and entertaining style. Half-a-crown never can be better spent than in the purchase of it."—*Church and State Gazette.*
"A death-blow to the apothecaries....Almost as entertaining as a novel."—*Westminster Review.*
London: Simpkin & Marshall, Edinburgh: Oliver & Boyd.

Now ready at all the Libraries, in 3 vols. post 8vo.
PARSONS AND WIDOWS. By the AUTHOR of "PETER PRIGGINS."

"Those who have read the former publications of the author of 'Parsons and Widows,' will be prepared for the rich treat which is supplied by his present work. The delineations of character with which it abounds, and the incidents, evidently derived from facts—fiction could not speak to the heart as these—present the narratives of the several clergymen who are supposed to give the strange eventful history of their progress through life, replete with varied interest. Certain downy doctors and rubicund rectors also come in for a fair share of ridicule and reproach. The Widows are hit off to perfection, and are sure to please every one."—*Globe.*
Henry Colburn, Publisher, 13, Great Marlborough-street.

THE KORAN: commonly called the Alcoran of Mohammed. Translated into English immediately from the Original Arabic; with Explanatory Notes, taken from the most approved Commentators. To which is prefixed a Preliminary Discourse, by GEORGE SALE, Gent. A new edition, with a Memoir of the Translator, and also various Headings and Illustrative Notes from Savary's celebrated version of this important work.

London: printed for Thomas Tegg, 73, Cheap-side. May be procured, by order, of all other Booksellers.

NICHOLS'S MORNING EXERCISES AT CRIPPLEGATE. On Tuesday, the 1st of October, in a large volume, closely printed, price 1s. 6d.

MORNING EXERCISES AT CRIPPLEGATE. St. Giles in the Field, and in Southwark. The 5th edition, carefully collated and corrected, by JAMES NICHOLS. Volume IV. to be completed in 6 volumes. London: printed for Thomas Tegg, 73, Cheap-side; and may be procured, by order, of all other Booksellers, of whom may be had the first Three Volumes, a few Copies of which remain on hand.

WAVERLEY NOVELS,

VARIOUS EDITIONS.

**SIR WALTER SCOTT'S
POETRY, PROSE WRITINGS,
AND LIFE.**

**I.
WAVERLEY NOVELS,
ABBOTSFORD EDITION,**

Royal 8vo. Six Volumes are now completed, with SIXTY-ONE Steel, and above ONE THOUSAND Wood Engravings.

The following Novels of this Edition are now complete:

WAVERLEY.
GUY MANNERING.
THE ANTIQUARY.
ROB ROY.
OLD MORTALITY.
THE BLACK DWARF.
THE ABBOT.
LEGEND OF MONTROSE.

HEART OF MID-LOTHIAN.
BRIDE OF LAMMERMOOR.
IVANHOE.
THE MONASTERY.
KENILWORTH.
THE PIRATE.

WAVERLEY NOVELS,

25 vols. small 8vo. cloth boards, or each Novel separate, 4s.

**III.
WAVERLEY NOVELS,
PEOPLE'S EDITION.**

144 Weekly Numbers, and 36 Monthly Parts have appeared.

Also the following Novels complete:

WAVERLEY. 2s.
GUY MANNERING. 1s. 9d.
ANTIQUARY. 1s. 8d.
ROB ROY. 1s. 11d.
OLD MORTALITY. 1s. 9d.
BLACK DWARF, and LEGEND OF MONTROSE. 1s. 6d.
HEART OF MID-LOTHIAN. 2s. 3d.

BRIDE OF LAMMERMOOR. 1s. 4d.
IVANHOE. 1s. 11d.
MONASTERY. 1s. 9d.
ABBOT. 1s. 9d.
KENILWORTH. 1s. 11d.
PIRATE. 1s. 11d.
FORTUNES OF NIGEL. 1s. 11d.

WAVERLEY NOVELS.

48 vols. Edition 1829-1833. With Proof Plates, scarce.

**V.
SIR WALTER SCOTT'S
POETRY.**

12 vols. 24 Plates. Uniform with NOVELS in 48 vols.

ANOTHER EDITION.

Royal 8vo. 17. cloth; and 11. 11s. 6d. Plates, half-bd. mor.

ANOTHER EDITION.

6 vols. 12 Plates, 11. 10s. cl. Uniform with NOVELS in 25 vols.

**VIII.
SIR WALTER SCOTT'S
PROSE WRITINGS.**

28 vols. Uniform with NOVELS in 48 vols., POETRY in 12 vols.

ANOTHER EDITION.

In royal 8vo. 3 vols. 21. 12s. cloth.

LIFE OF NAPOLEON,

Royal 8vo. 12. or 11. 8s. Plates; 5 vols. small 8vo. 25s.

TALES OF A GRANDFATHER.

3 vols. small 8vo. 15s. cloth; 18s. half morocco.

ANOTHER EDITION.

Royal 8vo. 12s. cloth, or 15s. Plates, half-bound morocco.

ANOTHER EDITION.

SCHOOL COPY. 2 vols. 10s. bound and lettered.

LIFE OF SIR WALTER SCOTT,

New Edition. By J. G. LOCKHART, Esq.
10 vols. 20 Plates. Uniform with NOVELS, POETRY, and PROSE in same size.

ANOTHER EDITION.

Royal 8vo. 11. cloth; and 11. 8s. Plates, half-bd. morocco.

R. CADDELL, Edinburgh; HOULSTON & STONEMAN, London.

**NEW WORKS
Just ready for Publication.**

1. Ranke's History of the Reformation.
Translated by SARAH AUSTIN, Translator of Ranke's 'History of the Popes.' Vols 1 and 2, 8vo.

2. On Landed Property and the Economy of Estates:

Comprehending the Relation of Landlord and Tenant, and the Principles and Forms of Leases; Farm-Buildings, Enclosures, Drains, Embankments, and other Rural Works; Minerals; and Woods. By DAVID LOW, Esq. F.R.S.E., Author of 'Elements of Practical Agriculture,' &c. &c. 8vo. with many Woodcuts.

3. The Life, Progresses, and Rebellion of James, Duke of Monmouth, &c.

To his Capture and Execution. With copious Biographical Notices. By GEORGE ROBERTS, Author of 'The History of Lyme Regis,' &c. 2 vols. 8vo.

4. Parochialia; or, Church, School, and Parish.

By JOHN SANDFORD, M.A., Vicar of Dunchurch, Chaplain to the Lord Bishop of Worcester, and Rural Dean. 8vo. with Woodcuts.

5. Lectures on Painting and Design.

Origin of the Art—Anatomy the basis of Drawing—The Skeleton—The Muscles of Man and Quadrupeds—Standard Figure—Composition—Colour—Antients and Moderns—Invention. By R. R. HAYDON, Historical Painter. 8vo. with Designs drawn on Wood by Mr. Haydon, and engraved by Edward Evans. 12s.

6. An Apology for the Nerves;

or, their Importance and Influence in Health and Disease. By Sir GEORGE LEFEVRE, M.D., Author of 'The Life of a Travelling Physician,' &c. Post 8vo.

7. Uncle Peter's Fairy Tales.

The First Story, containing the History and Adventures of Little Mary, Queen of the Great Island of Brakarakakaka. By UNCLE PETER, F.R.L.M. M.T. F.A.S. G.G. N.Y.Z. &c. &c. Fcp. 8vo.

8. The Collegian's Guide;

Or, Faithful Pictures of College Life. Designed for the Instruction and Amusement of both Freshmen and their Friends. By an M.A. of five years' experience of general Society at Oxford, and seven years' reflection at Home. Post 8vo.

9. Recent Improvements in Arts, Manufactures, and Mines:

Being a Supplement to his Dictionary. By ANDREW URE, M.D. F.R.S. &c. 8vo.

10. Tractarianism not of God:

Plain Sermons for the Times. By the Rev. C. B. TAYLER, M.A., Author of 'May You Like It,' 'Margaret, or the Pearl,' &c. Fcp. 8vo.

11. The Duality of the Mind

Proved by the Structure, Functions, and Diseases of the Brain, and by the Phenomena of Insanity; and shown to be essential to Moral Responsibility; with Remarks on collateral subjects. By A. L. WIGAN, M.D. 8vo.

12. The Englishman's Greek Concordance of the New Testament;

Being an attempt at a Verbal Connexion between the Greek and the English Texts; including a Concordance to the Proper Names, with Indexes, Greek-English and English-Greek. 2nd Edition, carefully revised, with a new Index, Greek and English. Royal 8vo.

13. A Progressive Grammar of the Latin Language,

For the Use of all Classes in Schools. By the Rev. B. H. KENNEDY, D.D., Head Master of Shrewsbury School. New Edition, 12mo.

14. Practical Astronomy and Geodesy.

By JOHN NARRIEN, F.R.S. and R.A.S., Professor of Mathematics, &c. in the Royal Military College, Sandhurst. Being the Third Volume of the Sandhurst College Text-Books. 8vo.

15. The Irish Question

Considered in its Integrity. By VISCOUNT WELLESLEY. 2nd Edition, revised, with a New Preface, embracing the late Events. 8vo.

16. The Natural Boundaries of Empires:

With a New View of Colonization. By JOHN FINCH, Esq. Corresponding Member of the Literary and Historical Society of Quebec, &c. Fcp. 8vo.

The Hours of Anne of Brittany.

The Illuminated Calendar and Diary for 1845, with Twelve large Designs, one appropriate to each Month, representing the Manners and Customs of the 16th Century; and a beautiful Title-page, ornamented with Fruits. The whole copied from the Calendar in the Hours of Anne of Brittany, carefully coloured by hand; with borders composed of Flowers, printed in colours and gold, from the same MSS. Imperial 8vo. price 11. 11s. 6d. bound in an ornamental and appropriate cover.

Goldsmith's Poetical Works.

Illustrated with Engravings on Wood, from Designs by the Etching Club. Square crown 8vo. Uniform with 'Thomson's Seasons.'

The Sermon on the Mount

(St. Matthew, Chaps. v. vi. vii.) Intended as a Birthday Present or Gift Book for all Seasons. Printed in Gold and Colours, in the Missal Style. With Ornamental Borders by Owen Jones, Architect, and a Design from a Drawing by W. Boxall, Esq. Small 8vo. bound in an appropriate manner, in morocco, by Hayday.

London: LONGMAN, BROWN, GREEN, AND LONGMANS.

NEW BOOKS AND NEW EDITIONS

PUBLISHED BY

JOHN W. PARKER, London.

A CYCLE of CELESTIAL OBJECTS, for the Use of Naval, Military, and Private Astronomers. By CAPT. W. H. SMYTH, R.N. K.S.F. (N.L. F.R.S. F. Astron. Soc. &c.), one of the Board of Visitors of the Royal Observatory. 2 vols. 8vo. with numerous Illustrations. I. Prolegomena; II. The Bedford Catalogue. (In a few days.)

TRAVELS in the TRACK of the TEN THOUSAND GREEKS; being a Geographical and Descriptive Account of the Expedition of Cyrus and of the Retreat of the Ten Thousand Greeks, as related by Xenophon. By W. P. AINSWORTH, F.G.S. F.R.G.S., Surgeon to the late Euphrates Expedition. Post 8vo. with Map, 7s. 6d.

By the same Author, 2 vols. with numerous Illustrations, 9s.

TRAVELS and RESEARCHES in ASIA MINOR, MESOPOTAMIA, CHALDEA, and ARMENIA.

COLLEGE LECTURES on ECCLESIASTICAL HISTORY; with complete sets of Cambridge, Dublin, and Durham University Examination Papers. By the Rev. W. BATES, M.A., Fellow of Christ College, Cambridge. Post 8vo. 9s.

THE ECCLESIASTICAL ARCHITECTURE of GREAT BRITAIN, from the Conquest to the Reformation. Illustrated by Views, Plans, Elevations, Sections, and Details; with Historical and Descriptive Accounts of the Rise, Progress, and Development of the various Styles of Church Architecture. By HENRY BOWMAN, Architect.

In Monthly Parts, royal 4to. 3s. 6d. each. Parts I. and II. contain Norbury Church, Derbyshire. III. IV. Lambley Church, Nottinghamshire. V. VI. Castle Rising Church, Norfolk.

CHRONICLES of the SEASONS; or, the Progress of the Year; being a Course of Daily Instruction and Amusement selected from the Popular Details of the Natural History, Science, Art, Antiquities, and Biography of our Father-Land. Complete in 4 vols. with Woodcuts, 3s. 6d. each.

Book the First, contains the Months of January, February, and March; the Second, April, May, and June; the Third, July, August, and September; and the Fourth, October, November, and December.

The MERCHANT and the FRIAR; or, Truths and Fictions of the Middle Ages. By SIR FRANCIS PALGRAVE. New Edition. 3s.

SIR JOSEPH BANKS and the ROYAL SOCIETY: a Popular Biography, with Historical Introduction and Sequel. 2s.

CUVIER and his WORKS; or the Rise and Progress of ZOOLOGY. 2s.

SMEATON and LIGHTHOUSES. 2s.

LINNEÆUS and JUSSIEU; or, the Rise and Progress of SYSTEMATIC BOTANY. 2s.

HISTORY of the FRENCH REVOLUTION; its Causes and Consequences. By FREDERICA MACLEAN ROWAN. 3s. 6d.

The LORD and the VASSAL: a Familiar Exposition of the Feudal System in the Middle Ages. 2s.

A HAND-BOOK of BIBLE GEOGRAPHY; containing (in Alphabetical Order) a Brief Account of the chief Places mentioned in the Old and New Testaments, descriptive of their ancient and modern condition. With Twelve Maps. 2s.

BIBLE MAPS for SCHOOLS. Sewed, 3s.

BIBLE MAPS: an Historical and Descriptive Atlas of Scripture Geography, wherein the Ancient Authorities are verified and corrected, from the information of Travellers and Writers up to the present time. By WILLIAM HUGHES, F.R.G.S. Bound in cloth, and the Maps coloured. 7s. 6d.

FIRST IDEAS of NUMBER for CHILDREN. 1s.

FIRST IDEAS of GEOGRAPHY for CHILDREN. 1s.

Now ready, and sent, free of postage, on application,

A CATALOGUE of EDUCATIONAL BOOKS for the use of Schools and Families, including the Works published under the sanction of the Committee of Privy Council on Education, and those issued by the Committee of General Literature and Education, appointed by the Society for Promoting Christian Knowledge, and adapted to the use of National and other Schools.

London: JOHN W. PARKER, West Strand.

LONDON, SATURDAY, OCTOBER 5, 1844.

REVIEWS

Memoirs of Eminent Englishwomen. By Louisa Stuart Costello. Vols. III. and IV. Bentley.

THE texture of these new volumes is too light and superficial for serious criticism: history or biography, in any grave sense of the word, they have no pretension to be called. They are little more than a series of random notices, strung together with a carelessness and incoherence which takes from them both interest and value, and inexcusable in a clever pleasant writer like Miss Costello. As we had occasion to object, in noticing her former volumes, the principle on which she selects her eminent Englishwomen is unintelligible; and one result of this looseness of selection, in connexion with the still greater looseness of treatment, is that what she offers to the public deserving of its notice, is already commonly known; and what she presents to it as new, is not worth the telling. Another consequence is, that she meddles with subjects which, had she taken more pains, she must have seen are unfit for her handling, and would certainly have avoided. No attempt is made to sift, weigh, or reconcile her authorities where they are at variance; and not unfrequently, in the compass of the same page, she is in contradiction with herself. We cannot attribute faults like these, on the part of a shrewd observer, and graceful narrator, to anything but indifference,—and must not therefore suffer them to pass unnoticed; at the same time that they are too completely woven into the entire staple of the volumes to admit, as we have said, of formal criticism.

The first of the memoirs in these new volumes, is that of Anastasia Venetia Stanley, the wife of the eccentric Sir Kenelm Digby, known to the world by the fantastic biography of her credulous husband, and by the casual notices of many of the gossips, and some of the graver writers, of the time,—which speak of her beauty and her indifferent reputation. Her sole title to be placed amongst eminent Englishwomen, is that commonest one of personal loveliness,—against which the character of her fame should, we think, be taken as a set-off. "As everything respecting her career is involved in mystery, and as her husband held her in such esteem," says Miss Costello, "it is but reasonable to believe that her beauty was her chief fault in the eyes of an envious world." This is one of those commonplaces in which Miss Costello deals too largely in these volumes, and which her own good sense could at once correct. The world is not the envious and uncandid personage in such matters which Miss Costello would represent it. Its sympathies are, on the contrary, very generally with the beautiful, and readily enlisted in its defence. Sir Kenelm's own narrative, despite the vanity and credulity of the man, raises suspicion enough; and all the other testimonies are directly against Venetia: and from their combined accusation, the lady cannot be rescued by the conjuration of a mere fanciful suggestion. The testimony of Vandyke, which has been pleaded against more serious witnesses, scarcely permits of being presented as a logical argument. Vandyke, a court painter, represents the fair Venetia, with the genius of Slander prostrate and bound at her feet. If the Lady Digby had had a pimple on her beauty, Vandyke would not have represented it at all. The portrait-painter is very generally the personal advocate of his subject; and, in the allegorical spirit of those days, became sometimes its moral defender. The notoriety of the beautiful Venetia's fame suggested a theme for the adulation of

Vandyke; and the position which he has assigned to Slander at the lady's feet is only another confirmatory evidence that it waited upon her person, while it cannot be gravely produced as proof that the stains upon her moral nature were unreal.

The Countess of Desmond's claim to a place in this selection of illustrious Englishwomen is acknowledged to be "her repute for extreme old age!" Yet, as Miss Costello honestly admits that nobody has been able to ascertain when she was born, it follows in this, as in all the "reputed" cases of extreme old age, nobody can tell how old she was; and therefore the only "interest" which attaches to this lady, is no interest at all.

Elizabeth Cromwell and her daughters, who follow next in the order of selection, were remarkable only as the family of the extraordinary man to whom they belonged—but have perhaps some title to a place among British worthies from that connexion. Of none of them has Miss Costello much to tell. An example, however, may be given here, once for all, of the common-place quality generally of those remarks by which Miss Costello connects together her copious extracts from well known sources,—betraying an unaccountable slumber in a mind which has established its capacity for better things. "If," she says, when recording the pedigree of the Protector's wife, "as is asserted, Cromwell's mother was a Stuart, and he thus a cousin of the king he murdered, as far as birth goes they were both sufficiently well born. A degree of gentility, more or less, can have little to do with the case: as, even if related, Cromwell had no right to the throne, nor was his wife born to expect one." Why, this, under the guise of historical comment, is the very genius of truism,—and books, under such a dictation, may be written by the acre. To one of Cromwell's daughters, Elizabeth Claypole, some interest is generally attached, from a belief that she had great influence over her father's mind, through his affections, and used it to rebuke his ambition and soften his severities; and the frontispiece to Miss Costello's third volume purports to be a portrait of this lady, engraved after a picture by Sir Godfrey Kneller. The reader will, no doubt be greatly surprised to see such a portrait of the young Puritan. This Diana of the drawing-room, with her hair dressed high off the forehead, luxuriant ringlets falling over the bare neck and shoulders, and the attributes of the chase by her side, will scarcely harmonize with his notions of the court and family of Cromwell. An examination of dates will absolve the young daughter of the Commonwealth from the stigma thrown on her by Miss Costello, and show that Sir Godfrey Kneller could not have painted Elizabeth Claypole, either in her own character or in masquerade. Sir Godfrey was born in 1648, studied at Lubeck, and had visited both Venice and Rome, before he came to England at all. Mrs. Claypole died in 1658—when Kneller was only ten years old.

The memoir of the Cromwells is followed by that of another lady of the Civil Wars and Commonwealth, Mrs. Lucy Hutchinson. Mrs. Hutchinson's personal title to distinction consists in her admirable memoirs of her husband—of extracts from which this article is almost entirely made up.

We now arrive at the period of the Restoration. Frances Stuart, Duchess of Richmond, known as *La Belle Stuart* in the memoirs of the time, is the first lady whom Miss Costello selects as its representative. The lady is not unworthy of the profligate time and scenes in which she flourished, but scarcely fitted to take her place in a collection of female British worthies. Claim to distinction she had none,

save beauty, in a court where beauty was not a distinction, and frivolity, where others were more frivolous than herself. After *La Belle Stuart* comes Dorothy Sidney, Countess of Sunderland—the Saccharissa of Waller, and interesting for no one other thing, even if that be a title of interest—which in our day will be doubted. If her memory have no higher odour than the feeble and affected verses in which the poet has embalmed it, it will scarcely attract the interest of a posterity so remote. It is something, perhaps, that she was the niece (*qu. grand-niece*) of Sir Philip, the poet, and the sister of Algernon the patriot,—and she was herself thoroughly respectable and a very great gossip:—but all these things cannot make her an eminent Englishwoman.

Elizabeth Percy, Duchess of Somerset, has a place in this collection, principally because she was "the heiress to an immense fortune, twice a widow before she was sixteen, and three times a wife by the time she had attained that age." The part she played in the court of Queen Anne, as rival to the Duchess of Marlborough, is scarcely touched on by Miss Costello. After the Duchess of Somerset, we come at length upon one of England's truly eminent women,—and pause before the honoured name of Lady Rachel Russell.

Miss Berry's narrative and Lady Rachel's own letters, make up nearly the whole of this new version of the well-known tale,—Miss Costello attempting scarcely anything herself in the way of remark, and giving herself no trouble of arrangement. Fortunately, however familiar the reader may be with the subject, he never can grow weary of it, and we shall venture, at all risks, to quote from the letters thus again brought under notice. The following extracts from one addressed to her husband, in the day of her happiness, are curious, for that momentary shadow from the terrible but distant future under which they would seem to have been penned.

"My best life, you that know so well how to love and to oblige, make my felicity entire, by believing my heart possessed with all the gratitude, honour, and passionate affection to your person, any creature is capable of, or can be obliged to; and this, granted, what have I to ask but a continuance, if God see fit, of these present enjoyments? If not, a submission, without murmur, to his most wise dispensations and unerring providence: having a thankful heart for the years I have been so perfectly contented in. He knows best when we have had enough here: what I most earnestly beg from his mercy is, that we both live so as, whichever goes first, the other may not sorrow, as for one of whom they have no hope. Then let us cheerfully expect to be together to a good old age; if not, let us not doubt but he will support us under what trial he will inflict upon us. These are necessary meditations sometimes, that we may not be surprised above our strength by a sudden accident, being unprepared. Excuse me, if I dwell too long upon it: it is from my opinion that, if we can be prepared for all conditions, we can with the greater tranquillity enjoy the present; which I hope will be long, though, when we change, it will be for the better, I trust, through the merits of Christ. Let us daily pray it may be so, and then admit of no fears: death is the extremest evil against nature, it is true; let us overcome the immoderate fear of it either to our friend or self, and then what light hearts may we live with!"

Lady Rachel had, early, forebodings of evil to her husband, from the career in which he had embarked:—

"Her letters from 1678 begin to assume a more serious character, and her fears are shown in the following,—which seems to allude to the motion of Lord Russell, thus conceived: 'I move that we may go into a committee of the whole house, to consider of the sad and deplorable condition we are in, and the apprehensions we are under of popery and a

standing army, and that we may consider of some way to save ourselves from ruin." "My sister," says Lady Rachel, "being here, tells me she overheard you tell her lord last night that you would take notice of the business (you know what I mean) in the house: this alarms me, and I do earnestly beg of you to tell me truly if you have or mean to do it. If you do, I am most assured you will repent it. I beg once more to know the truth. It is more pain to be in doubt, and to your sister too, and, if I have any interest, I use it to beg your silence in this case, at least to-day."

Miss Costello's account of the trial-scene, on which the pen and pencil have both been already eloquent, is given in the following words:—

"However horror-stricken at his danger, Lady Rachel never allowed the poignancy of her feelings to overcome her presence of mind, or to chill her exertions in his behalf. Rousing all the energies of her nature, she bent their whole force to the accomplishing the only object which was now sacred in her duty; and, during the rapid interval of her husband's arrest and imprisonment in the Tower, she never ceased her efforts to provide against the charges which would be brought forward to crush him. The trial came on, and Lord Russell did

—not want a faithful friend

To share his bitter fate's decree.

When the Attorney-General's parsimonious indulgence, which grudged the patriot a legal adviser, permitted him to employ a servant to write notes for him, and the Chief Justice added:—'Any of your servants shall assist you in writing anything you please,' the memorable reply of Lord Russell was elicited: 'My wife,' said he, 'is here to do it;' and the daughter of Southampton, whose long services to his country nothing availed, stood forth, in the midst of a full court of her husband's enemies, undaunted in the discharge of her holy office. 'If my Lady will give herself that trouble'—was the answer of the chief officer; while every cheek reddened with confusion as the resolute wife took her seat, with the pen in her hand, and her anxious eyes fixed on him for whom she would have willingly laid down her own life."

The last scene between the noble martyr and his high and gentle-hearted wife is thus described:—

"When the last hope of obtaining his pardon was at an end, and even a respite from Saturday to Monday was denied, Lady Russell conducted her children to their father's prison to take a last farewell. He received them with his customary serenity, blessing and embracing them. No recollections of a similar scene, in which his own father and family were actors, rose to the mind of Charles Stuart, and filled his eyes with tears and his heart with pity. He was otherwise occupied, and had no time to spare from his patriotic pursuits to give a glance into the prison of the man who had endeavoured to save his country from ruin! Again, on that last fatal evening the wretched wife came to his prison. She shared his last meal with her husband, conversed with him calmly, lingered hour after hour, and at length embraced and quitted him without a tear which should unman and unfit him for his coming struggle."

The picture wants some of Bishop Burnet's colouring after nature:—

"He wished his wife would give over beating every bush, and running so about for his preservation; yet, when he considered that it would be some mitigation of her sorrow, afterwards, that she had left nothing undone that could have given any probable hope, he acquiesced; and, indeed, I never saw his heart so near failing as when he spoke of her. Sometimes I saw a tear in his eye, and he would turn about, and presently change the discourse. At eleven o'clock (on Friday evening) my lady left him; he kissed her four or five times; and she kept her sorrow so within herself, that she gave him no disturbance at their parting. After she was gone, he said, 'Now the bitterness of death is past,' and ran out into a long discourse concerning her, how great a blessing she had been to him; and said, what a misery it would have been if she had not had that magnanimity of spirit, joined to her tenderness, as never to have desired him to do a base thing for the saving of his life. 'Whereas, otherwise, what a week should I have passed, if she had been still crying on me to

turn informer, and be a Lord Howard;' though he then repeated, what he had often before said, that he knew of nothing by which the peace of the nation was in danger. * * * But he left that discourse, and returned to speak of my lady. He said there was a signal providence of God in giving him such a wife, where there was birth, fortune, great understanding, great religion, and great kindness for him. But her carriage in this extremity went beyond all. He said he was glad that she and her children were to lose nothing by his death: and it was a great comfort to him that he left his children in such a mother's hands, and that she had promised to him to take care of herself for their sakes,—which I heard he do."

Perhaps it is in the after part of her life that the character of Lady Rachel Russell rises to its highest point of dignity; she kept her promise to the dead, and bore up against the mighty sorrow at her heart, for the sake of those who had been commended to her care. She lived to see the attainer which had fallen upon her family reversed, to marry her children, and to go through many after sorrows,—but ever referring to the memory of her late husband as her guide in what she did, and in all things performing the part of a nobly endowed and high-hearted woman. "Sure," she says, on the marriage of her eldest daughter to Lord Cavendish, "if departed souls know what we do, he approves of what I have done; and it is a reward upon his children for his patience and so entire submission during his sufferings." The terrible character of the fight which she had for a long time to maintain against the worm at her heart that she might perform her great duty well, is touchingly evidenced by the cry wrung at times, from her wounded spirit, in spite of all her strong resolve:—

"Lord, let me understand the reason of these dark and wounding providences, that I sink not under the discouragement of my own thoughts. I know I have deserved my punishment, and will be silent under it; but yet secretly my heart mourns too sadly, I fear, and cannot be comforted because I have not the dear companion and sharer of all my joys and sorrows. I want him to talk with, to walk with, to eat, to sleep with. All these things are irksome to me. The day unwelcome, and the night so too: all company and meals I would avoid, if it might be."

The following is a torment of the heart which the bereaved will well understand:—

"* * * Then I find reflections troubling me as omissions of one sort or other, that if either greater persuasions had been used he had gone away, or some errors at the trial amended, or other applications made, he might have been acquitted, and so yet have been in the land of the living (though I discharge not these things as faults upon myself, yet as aggravations to my sorrows); so that, not being certain of our time being appointed beyond which we cannot pass, my heart shrinks to think his time possibly was shortened by unwise management. I believe I do ill to torment myself with such unprofitable thoughts."

"* * * The new scenes of each day make me often conclude myself void of temper and reason, that I still shed tears of sorrow and not of joy, that so good a man is safe landed on the happy shore of a blessed eternity. Doubtless he is at rest; though I find none without him,—so true a partner he was in all my joys and griefs. I trust the Almighty will pass by this my infirmity. I speak it in respect to the world, from whose enticing delights I can now be better weaned. I was too rich in possessions whilst I possessed him. All relish is now gone."

But she faced her sorrow bravely, and would not be beaten down:—

"I am entertaining some thoughts of going to that now desolate place, Stratton, for a few days, where I must expect new amazing reflections at first, it being a place where I have lived in sweet and full content, considered the condition of others, and thought none deserved my envy. But I must pass no more such days on earth: however, places are indeed nothing. Where can I dwell that his figure is not present to me? nor would I have it otherwise; so I resolve that shall be no bar, if it proves requisite for the better acquitting any obligations on me. * * * I have, you find, sir, lingered on my time, and I think none

will wonder at it, that will reflect the place I am going to remove to was the scene of so much lasting sorrow to me, and where I acted so unsuccessful a part for the preservation of a life I could sure have laid down mine to have continued. 'Twas an inestimable treasure I did lose, and with whom I had lived in the highest pitch of this world's felicity. But having so many months mourned the substance, I think, by God's assistance, the shadows will not sink me."

Consolation came to her at length, in forms of teaching like the following:—

"My poor boy, she says, has been ill, and God has let me see the folly of my imaginations, which made me apt to conclude I had nothing left the deprivation of which could be matter of much anguish, or its possession of any considerable refreshment. I have felt the falseness of the first notion; for I know not how to part with tolerable ease from the little creature. I desire to do so of the second, and that my thankfulness for the real blessing of these children may refresh my labouring, weary mind with some joy and satisfaction, at least, in my endeavours to do that part towards them their most dear and tender father would not have omitted."

The widowed Lady Rachel Russell survived her husband forty years: her name is worthy to be associated with the great name of him for whom she was a mourner all that time; and she has her fitting place in any selection of England's female worthies.

She is succeeded in these volumes by a worthy of a different kind, but a worthy still,—though she gets less than justice at the hands of Miss Costello—Margaret, Duchess of Newcastle. "The innumerable books of this persevering author," says our memorialist, "were the nuisance of the times in which she lived;"—a censure somewhat harshly conceived, especially from so general a panegyrist as Miss Costello. Miss Costello herself publishes extracts from the poems of the duchess which might have tempted her to gentler phrase, even if the harsher one had represented the exact truth. But the duchess had her admirers as well as scoffers in her own day, despite the sort of fantastic circumstance by which she surrounded herself,—and which was a temptation to the latter: while in ours, where the state has faded and the circumstance is dust, she has, we assuredly think, more of the former than of the latter in the narrow world of readers to whom she is known. Miss Costello seems to have taken her cue from Walpole,—an unsafe guide in the field of criticism, where he surveyed with sarcasm and measured with epigrams. The very delight which we find ourselves taking in his keen, polished pleasantries should warn us how dangerous they are. But "the pride and fondness of the duchess for her lord" were as much the subjects of Horace's ridicule as her estimation of her literary self. A critic of another complexion, Charles Lamb, found a great many things in Margaret Duchess of Newcastle that Horace Walpole missed; and the virtues of piety, generosity, and devotedness for which she was distinguished, to a palate like his, helped their savour. Margaret Lucas and her future husband, then Marquis of Newcastle, were both exiles, following the fallen fortunes of the family of Charles the First, and married while adversity, in the form of narrow means, was bringing out the good qualities of both, and teaching them the value of their mutual affection. At the return of the Stuarts, the marquis was made a duke, and restored to his property. From the day on which they married, the noble pair lived pen in hand, and nourished in each other, fancifully enough, the belief of a literary infallibility. But good came of their consorting with the Muses; for in the midst of their self-admiration, they were generous patrons of others. Walpole gives a list of the duchess's works; the number and titles of which alone may give some idea of her poetical industry and self-complacent

daring. All these belong now to the world of shadows, as the domain of the antiquarians may be called; but now and then a searcher in their dim haunts turns up one of her whims, and finds a living soul within. Both fancy and sentiment the duchess possessed in a considerable degree, a style quaint and epigrammatic, and no mean powers of thought. A few lines from Miss Costello's own pages, to go no further, may be given in exemplification:—

Wherein Poetry chiefly consists.

Most of our modern writers, now-a-days,
Consider not the fancy, but the phrase;
As if fine words were wit, or one should say,
A woman's handsome, if her cloaths be gay,
Regarding not what beauty's in the face,
Nor what proportion doth the body grace;
As when her shoes be high, to say she's tall;
And when she is strait-laced, to say she's small;
When painted, or her hair is curl'd with art,
Tho' of itself but plain, and her skin swart,
We cannot say, that from her thanks are due
To Nature, nor those arts in her we view,
Unless she them invented, and so taught
The world to set forth that, which is stark naught.
But fancy is the eye gives life to all;
Words, the complexion, as a whitened wall;
Fancy the form is, flesh, blood, skin, and bone;
Words are but shadows, substance they have none;
But number is the motion, gives the grace,
And is the countenance of a well-fronced face.

Mirth and Melancholy contend, in an apologue, for the heart of Duchess Margaret, mutually disparaging one another; and here is a portion of the plea of Melancholy:—

Melancholy.

Then Melancholy, with sad and sober face,
Complexion pale, but of a comely grace,
With modest countenance thus softly spake:
"May I so happy be your love to take?
True, I am dull, yet by me you shall know
More of yourself and so much wiser grow:
I search into the bottom of mankind,
Open the eye of ignorance that's blind;
All dangers to avoid I watch with care,
And do 'gainst evils that may come prepare.
I hang not on inconstant fortune's wheel,
Nor yet with unresolving dothness reel;
I shake not with the torments of vain fears,
Nor is my mind fill'd with unuseful fears;
I do not spend my time like idle Mirth,
Which only happy is just at her birth;
And seldom lives so long as to be old;
But if she doth, can no affections hold."

I dwell in groves that gill are with the sun,
Sit on the banks by which clear waters run;
In summers hot, down in a shade I lie,
My music is the buzzing of a fly;
I walk in meadows where grows fresh green grass;
In fields, where corn is high, I often pass;
Walk up the hills, where round I prospects see,
Some brushy woods, and some all champains be.
Returning back, I in fresh pastures go,
To hear low sheep do bleat, and cows do low.
In winter cold, when nipping frosts come on,
Then I do live in a small house alone;
Although 'tis plain, yet cleanly 'tis within,
Like to a soul that's pure and clear from sin;
And there I dwell in quiet and still peace,
Not fill'd with cares how riches do increase;
I wish not seek for vain and fruitless pleasures,
No riches are but what the mind intreatures.
Then am I solitary, live alone—
Yet better lov'd the more that I am known;
And though my face ill-favoured at first sight,
After acquaintance it will give delight.
Refuse me not, for I shall constant be,
Maintain your credit and your dignity."

Of such a lady, so endowed, the harmless vanity—which enlarged itself that it might square with its affections, and could forget itself that it might bend to its duties—should not have provoked a summary censure like the following from one of her own sex:—

"This singularly pedantic and self-sufficient lady, the wife of a man who figures for many years during the fatal struggles between the Stuarts and the Commonwealth, was one of those who, with some talent and no genius, contrive to bring themselves into notice by dint of resolute scribbling, and manage to attain a certain reputation by means of frequent assurances to the world that they deserve a high place in public estimation. She belonged to that class of ladies of rank who are not content to understand and patronize the works of persons of merit, but indulge the ambition of imitating them, and fondly persuade themselves that they can compete with the best authors of the day. The innumerable books of this persevering authoress, were the nuisance of the time in which she lived; and, although she reaped little

but ridicule by her industry, yet her vanity was such that she never perceived she was being laughed at, and lived on in a fool's paradise of letters; glorying in her fame, and pluming herself as much on the literary reputation of her husband. In almost every age there has been some such self-esteeming Phoenix, whose harmless conceit does but little injury, but is, nevertheless, a general annoyance, except to the tradesman she employs to print and bind the countless volumes with which she delights to adorn her own library."

We shall have something to say of the remaining memoirs in these volumes, on a future occasion.

Oriental Letters—[Orientalische Briefe, &c.]

By Ida Countess Hahn-Hahn. 3 vols. Berlin, Duncker; London, Nutt.

The rage for travelling must have its period, though the Bostonian sage, Emerson, says it is not the healthiest symptom of our times. We must become quite familiarized with such phenomena as English, French, and even German ladies strolling beside the Pyramids, at Delhi, or at the Great Wall of China, making yacht-voyages to Texas, or like the stout-hearted Mrs. Postans, creeping through mephitic passages to see embalmed crocodiles. When this locomotive excitement is exhausted, a new interest will be sought and found. Men and women of talent will locate themselves, choose their parishes, and devote to the welfare of the poor around them the interest now dissipated in world-wanderings. A practical parochial system in literature and philanthropy will take the place of itinerant cosmopolitanism. The travels and reflections of a quondam Irish absentee upon his own estate will then, perhaps, make a very interesting book. But we are not complaining of books of travels. They are the pleasantest books that come to our hands, now-a-days. There is a time for all things, and the age of travelling has not yet reached its acme. So we accept, with pleasure, the contributions of the Countess Hahn-Hahn to our library of travel. Her letters are written in a very lively and agreeable style, though, perhaps, with a little too much egotism. She makes light of the troubles and dangers of her journeys, throws aside all the solemn notions of the fifteenth century about perils by land and water, and talks like an audacious nineteenth century traveller. Indeed, her spirit and hardihood sometimes amount to manliness, and as to Bedouins and other Oriental bugbears, she holds the creed of the Frenchman concerning tigers in India—"Je ne crois pas aux tigres, car je n'en ai pas vu." Thus she tells us in her introductory letter,—

I cannot tell you how far below my expectations have been the difficulties, dangers, and troubles of my journey. I cannot help laughing when my friends receive me as one arisen from the grave, ask me sympathizingly of perils which I have never encountered, and admire the courage which I have had no opportunity of showing. Neither misfortunes nor loss of health have accompanied my journey, only such trivial vexations and inconveniences as lazy attendants, vermin, and camel-riding over the desert; but inconveniences are to be found everywhere. I have never suffered a moment's alarm, nor once exclaimed—"Oh, that I had never undertaken it!" I had only one difficulty, and that was to form a resolution for the journey. Good health is the chief requirement for such an excursion, and, next to that, the choice of a suitable season; October and November for Syria, and the winter months for Egypt. I must say, that those who seek only for a superficial amusement in travelling should not go to the East.

The route chosen by the Countess was from Vienna to Pesh, and down the Danube; from Constantinople to Smyrna, thence to Beyrout, over Lebanon to Balbec, and over Anti-Lebanon to Damascus; then to Mount Carmel, Nazareth, Jerusalem, over the Desert to Cairo, and to the

cataracts of the Nile. At Vienna she wisely provided herself with a "*costume de gamin*," highly recommendable to all ladies who intend to follow her footsteps, especially up Mount Lebanon.

We have had so many sketches from the East lately, that we hardly know how to find extracts of novelty from these letters, though they are made interesting throughout by the lively style in which every topic is treated. We open at random upon an Arab marriage ceremony at Beyrout:—

A marriage festivity has always something of constraint and unpleasantness about it; the tumult is annoying to the newly-wedded pair, and the guests hardly know why they must make themselves so merry. But our European weddings have nothing to rival the torment of an Arab marriage-feast. The knot was tied about noon, according to the rites of the Greek church. After this the bride was conducted into one chamber and the bridegroom into another—she surrounded with her female relatives and friends, and he with all the gentlemen to keep him company;—and thus, separately, the young couple were entertained with music, songs, dances, conversations, visits, eating and drinking—only for three days and three nights—no longer! What do you think of such a colossal capacity for amusement? I must confess that I was wearied even with my half-hour's visit. The master of the house, a cousin of the fatherless bride, received me, and led me into the ladies' apartment. As I entered they all arose from the low broad sofa, so as to stand upon the cushion, and at this evolution the bride was supported on each side by her neighbours, as it is a point of etiquette on such an occasion that she should move as little as possible. I was allowed to take a seat beside her, and had a fair opportunity of contemplating her remarkable figure. A figure, indeed, and very much like a doll! She must not speak a syllable, must not look upon a person, nor change a feature, nor open an eye—to make this last point of etiquette sure, the eyelashes are besmeared with some gummy composition. Her eyebrows are painted black, and high-arched; her cheeks are painted red; the hands are tattooed with dark-blue arabesque, and the fingernails stained yellow. Certainly, if after three days such a bride was introduced to a European, his first exclamation would be "Wash yourself, my angel!" As there was neither music nor dancing here, I was glad to hasten my visit to the bridegroom, who was confined in another room by Arab marriage-etiquette. But he was allowed to move, talk and look about him, and, indeed, seemed very cheerful. Here there was music. In a corner of the room the musicians were seated on the floor, one beating upon two little kettle-drums, another striking a sort of dulcimer, and the third labouring upon some little stringed instrument—all three singing too with all their bodily might, in the most discordant tones that can issue from the human throat, mingling together wild screams, with guttural and nasal sounds—a terrible concert! I stayed a little while, and then made my escape, glad enough that I had not to stay, like the other visitors, until the next morning. I have nerves strong enough to encounter some hardships, but not for such amusements.

Of Jerusalem, and other halting-places in eastern pilgrimage, we have nothing new. The authoress, like many other travellers, too often gives us meditations such as we may have at our own firesides, without going to Palestine, and forgets that we require from travellers accounts of actual life and circumstances, not sermons. Here is a glance into the interior of a harem at Damascus:—

The possessor of this harem is by no means enviable. The ladies and their attendant slaves had a most negligent, uncleanly, and altogether unprepossessing appearance, looking as if they had slept in their daily dress, as is the fashion here, and that for more than one night. They screamed, laughed, and made all sorts of rude noises about me, stared at me, and seized my hand—the savages of the South-Sea islands could not be ruder in their curiosity. And this was the harem of a wealthy and respectable man! Certainly the harem makes its prisoners coarse-

mind and stupid. What a contrast there was between the behaviour of these women and that of the fair Jewesses who, like them, are natives of Syria and equally uneducated! I felt very uncomfortable within the walls of this harem, and was glad when I got out and joined my attendants. To see such a company of rude women was revolting. The harem degrades woman to a mere animal. Do not be offended at the strong expression. Men who take the liberty to write about things of which they know nothing, have often asserted that these Oriental women do not feel unhappy in the harem. So much the worse for them!—did ever a cow feel unhappy in a green meadow? What a happiness that I belong to the old so-called northern barbarians, to the German race, with whom, even from the oldest times, woman has held her due place. Polygamy is a wall of separation between Christianity and the Eastern people.

At Damascus, an excommunicating glance of contempt from an orthodox Mohammedan taught the traveller a lesson of the bitterness of religious persecution. She looked into the Greek church there; and there is a moral in the following observation:—

I stood at the entrance, looking upon the congregation, and had the greatest difficulty to imagine that these people, in caftans and turbans, could be Christians. "Heavens!" I thought, at last, quite impatient with myself; "is a frock coat then identical with a Christian?" But such is the force of habit that it makes us all stupid.

The climate and scenery surrounding Beyrout delighted our traveller; but she thinks the Turks hardly worthy of the ground on which they dwell:—

Without irrigation nothing can flourish here; and where there is no cultivation there will soon be an accumulation of sand. This might be avoided by plantation and culture, but how is it neglected! The Turk lays his hand on his bosom, smokes his chibouque, and says "*Kismet!*" which means "fate!" and this consoles him for all the sandy deserts in the world. In my view, the ground, this good grateful nourisher of the human race, is worthy of honour and respect, and it grieves me to see it prevented by negligence from displaying its powers and yielding its treasures, especially here, where a paradise might bloom. I have arrived in a beautiful season, and at the full moon. It is so clear that objects in the night time do not look black, but show their colours; the air is soft and warm, and indeed a night here is a day without a sun.

The profound solitude of Mount Carmel and its noble view over the Mediterranean so enchanted the Countess that she felt strong sympathies with the convent life, and heartily eulogized the hospitable monks. At Jerusalem, our traveller mentions a party of Wirtemberg peasants who had arrived in the barren stony valley of Jehoshaphat, intending to wait for the Messiah! Surely there must be something in the eastern atmosphere very favourable to prophetic interpretations, and millenarian visions, as we have heard of educated men there, as well as ignorant fanatics, who are looking forward to miraculous events for that which can be realized only by the sober practice of Christian virtues. In all probability, Judæa may yet be the theatre of some great display of mistaken religion; for when we consider the temper of some enthusiasts, both in our own country and in America, we might almost suppose that there are materials gathering for another absurd crusade. But we shall leave Jerusalem and pass over the author's meditations on topics which are beyond the compass of a book of travels. Here is a passage from the desert journey:—

I have given you some account of the material character of my Desert journey, in which you will find little that is interesting, and as to the intellectual part, it is still more barren of interest. Never did the pilgrim tarry willingly upon this waste of sand. The great caravans of devotees on their pilgrimage to Mecca, and others of a trading character leave behind them here no traces, save graves

and scattered bones. Dead camels, in all the stages of decay, from those lately fallen to those of which the white skeletons are alone remaining, mark out the way. The graves of pilgrims who have died in the desert, from want, disease, or exhaustion, are marked out by little heaps of sand, with the bones of animals stuck around them, and are common objects. In the air large birds of prey sail slowly round and round; crows with wild harsh croakings and heavy flapping wings are seen in great numbers, and cat-like beasts of prey lurk among the low shrubs—all seeking for corpses! The desert is a grave-yard in its most desolate form. The sea, the mountains are solitary, and, sometimes, seem melancholy in their lone dreariness; but if there is no life in them there are no memorials of death. On the granite peaks and on the foaming billows there are no marks of human decay. The rocks and waves are undecayed with the dust of mouldering bones, and present to us, in their vastness, infinitude, and unbroken calmness, a symbol of eternity, in contrast with which this short earthly life seems but like a morning dream. There is something more than a mere pleasure for the eye in such solitudes. The heart beats more peacefully there. But here, in the Desert, death keeps house and all around are the remains of a once restless and miserable life. Death is sublime when we consider him as the conqueror, and, at the same time, the supporter of a life which he only overcomes that it may arise again in an everlasting *palinnesia*. But here it is "dust to dust"—that is all. I tried to find a source of brighter thoughts in recurring to history; but here what a contrast between the sea and the desert! On the waves, how manifold the crossing tracks of gay fleets, armadas, and naval heroes! what a crowd of great thoughts and undertakings, colossal speculations, and adventurous enterprises! No passion, good or bad, is there that has not urged men over the waves. Gold, happiness, dominion, love, freedom—all have been pursued on the sea; avarice, love of glory, thirst for discovery, philanthropy, science, misery, restlessness—all have played their part, and sought to be carried to their desired objects on the waves. Of all these there is no trace left in the desert. Great armies have crossed the sands, it is true—Cambyses with his Persians, Alexander, Zenobia (the proud woman, who degraded her husband just as the Oriental men now degrade their women), and other conquerors have passed through the desert; but they have left only desolation behind them. I could find, therefore, no historical interest to enliven me here. The stars were beautiful on the distant horizon—where are they not? and the morning and the evening glow, sunrise and all the changes of the heavens, were beautiful, and furnished my only entertainment. *

We found night quarters at the village of Abuhamed, surrounded by morasses and inundation, which seemed a very unwholesome halting-place, especially as we arrived there during a heavy shower of rain. The next morning was most beautiful. Here the country changes its character, or rather man has changed it, for, like the whole of Egypt, it would be a desert without the means of irrigation derived from the overflowing of the Nile. From Abuhamed to Cairo it is a day and a half's journey, and, as we proceeded, we had to our left hand the dead plain, while on our right hand extended groves of palm-trees, cotton-trees, fields of maize, and pools of water; on one side the wilderness, and on the other an Eden; on the left the bright yellow of the desert, and on the right a verdure sparkling like enamel. As we proceeded, the plain began to be diversified with human life. The inhabitants of the villages were carrying oranges, citrons, dates, and bananas to the city, and travellers, tradespeople, trains of camels and asses, and mounted soldiers showed us that we were approaching the suburbs of Cairo. A number of ornamental minarets arose out of the crowd of houses before us, surrounded and interspersed with palms and other trees. In the foreground a row of windmills elevated their ungraceful forms upon sand hillocks, and, here and there, large grave-monuments stood detached from the extensive burial grounds. But in the background, beyond the city, two mighty forms arise—are they hills? they are too regularly formed—are they buildings? they seem too gigantic—they are the pyramids of Gizeh.

In Cairo, our traveller found many charms contrasted with the dulness of Jerusalem and the Desert. Upon the summit of the Pyramid of Cheops (for climbing which she recommends her "*habit de gamin*") she was pestered with the everlasting Oriental petition for "baksheesh!" Where will not Mammon en throne himself? The following is a pleasant way of urging a pecuniary claim:—

As we hastened down the side of the pyramid, and came upon a bad, crumbled place, the Bedouin who had to assist me over it held me up in the air, and said, "baksheesh, signora! baksheesh!" This was only a friendly Bedouin joke. But how would you like, if only for two seconds, to be suspended in the air, in such a situation? I replied, very angrily, that he should not get a *para* from me, and my anger made some impression upon my five attendants, for they afterwards kept silence upon this point.

We cannot follow the wandering Countess through all her speculations on Egyptian history and antiquities, during her passage up the Nile to the chaotic scene of the so-called cataracts, where she inscribed on the rock, for the first time, the name of a German lady; but we may give the following as one of the pleasantest passages from her Nile voyage:—

These evenings on the Nile are the most beautiful that I have ever enjoyed. In the daytime, the burning sun-rays are so powerfully reverberated from the water, the desert sand, and the chalky hills, that one does not feel disposed to quit the cabin. But, towards evening, you come out, recline for a couple of hours upon a broad sofa, and breathe the light, bland, fresh air. The sun sinks behind the dark-blue Libyan hills, while his beams fall upon the Arabian summits as on a prism, clothing them with the hues of flowers, butterflies, and gems. Some of the hills look like great glowing roses, others like chains of amethysts in a golden setting. The quiet water faithfully mirrors the beautiful vision, only as with a light gauzy veil breathed over it. The perfumes of spring-tide fill the atmosphere, fields of rape-seed, beans, lupines, vetches, and cotton-trees lie around us all in bloom; acacia shrubs, interwoven with lilac and blue coloured parasites, surround the water-wheels by which the fields are irrigated, or flourish on the banks of the river. The balsamic, refreshing fragrance is like the breath of spring in our fields and woods during the fairest season of the year. Wild doves are cradled upon the palm-branches, or cooing and coquetting among the bushes. Waterfowl sit in clusters upon the sand-banks, here some marble white, there others raven black, chirping out their monotonous evening song, which they seem to have learned from the uniform plashing of the river by which they dwell. Sometimes a large heron floats over the stream, and, now and then, the pelican, with heavy-flapping wings, dives after a fish. When the sun is down and the evening glow has faded, another softer radiance arises in the south, to clothe the pale mountains again with rosy tints. Meanwhile the stars have arisen, Venus fairest of all, Orion ascends over the Arabian hills, then, later, arises Canopus, which you never see at home. We float down as if between two heavens. The silver flood of the Nile is a firmament full of softly shining tremulous stars, while those above, large and steady, look out like angels' eyes, and have nothing of that glimmering, as if they trembled with cold, which you see in your clear winter nights. On the banks of the river life is stirring. Fires are burning in the villages, and the hearths are before the door-ways of the huts. Flocks of bleating sheep and goats are driven homewards; dogs barking, asses braying, and children shouting swell the concert. Men are singing, keeping time with their action as they fill their well-buckets from the Nile, and empty them into the troughs which convey the water. Solitary songs from those returning singly from the fields, loud conversations and calls are heard far and wide. The Arabs call to each other from boat to boat, or across the river—I might almost say from village to village, so conversational are these people, and always in a tone that sounds to me like a threatening cry. In a lonely barge one is beguiling the time by striking the *darabukah*, the dull tones of which remind me of

the guitar. At last all is still, and coolness comes over the water. Then we return to drink tea in the cabin.

A Narrative of a Visit to the Mauritius and South Africa. By James Backhouse. Hamilton, Adams & Co.

Is compliance with "an impression which for about sixteen years had been upon his mind, respecting paying a religious visit to some parts of the Southern Hemisphere," Mr. Backhouse, the readers of the *Athenæum* know, set out, in the year 1831, for Australia. From thence, the course of his conscientious wanderings have carried him to the Mauritius,—and over all the colonial towns and missionary stations existing in Southern Africa, at the period of his visit; and not till February 1841 did he return to his home in York. Nine years and a half have, thus, been expended in this labour of love; to enter upon which he "left his children young," and found them, on his return, grown out of his parental knowledge. Of the earlier portion of this journey the narrative was given in a former number (*Ath.* 805); and the bulky volume now before us closes the record of its "experiences."

That a travel of such extent, and, as regards its later scenes, of an interest so unexhausted, should have yielded so little for the general reader, is not sufficiently accounted for even by the speciality of the objects to which it was directed; and that the little it tells should occupy 700 goodly pages in the telling, may be best explained by a sample of the narrator's manner. The very first paragraph of his itinerary will answer the purpose, as well as any other:—

"Having concluded a visit to the Australian Colonies, in which I was accompanied by my friend George Washington Walker, who also continued with me in the Mauritius and Southern Africa, we sailed from Freemantle, in Western Australia, on the 12th of the 2nd month, 1838, on board the *Abercromby*, a brigantine of a hundred and forty tons, J. B. Butcher, master. The cabin passengers were seven in number, two of whom were females; for their accommodation, we gave up our cabin berths, the captain agreeing to fit up others in the midships, which, as the vessel was in ballast, was also converted into a dining room; a large, temporary table, of fixed deals, occupied the centre."

Here, it will be perceived, the names of the vessel, and of its master—its tonnage—the number of the passengers, and their division into sexes—the place of their sleeping berths, and the reason why they slept there—the vessel's condition as to lading—the position of its dining-room—the exact place in that room of the dining-table—and the particular wood of which it was composed—are all deemed matters worthy of record. "On board," he says, on another occasion, "we had a large sleek ass, a sow, with three well-grown pigs, two sheep, a very domestic goat that supplied us with milk, a little dog, plenty of ducks and fowls, and a cage of handsome birds, natives of the Mauritius. The cargo was sugar, rice, cocoa-nuts and tamarinds. As is commonly the case in sugar ships, we had plenty of large cockroaches, that sometimes intruded into the cabin; one awoke me this morning by rustling among my hair." From the mind that takes scrupulous and microscopic account of matters of this value, it might be too much to expect large views or extended information. His inventories we believe to be correct, to a duck—and they necessarily occupy much space; but he was, of course, too much engaged in making them to observe the more important phenomena passing around him. Where a cockroach in the hair is a thing to be chronicled, matters more significant cannot possibly have their due proportion; and a meteor might have come, and gone, unnoticed, while the author was verifying

the litter of pigs. But his zeal and earnestness make all his doings respectable,—even in the eyes of those who dissent from the forms in which those impelling principles are cast; and, though two-thirds of his volume are useless, save as a report to missionary societies,—and one of the two might have been retrenched, without any loss to them,—yet even out of the exclusive direction of his inquiries results a body of facts which may be useful, and help others to such conclusions as it was no part of the author's own purpose to extract from them. Amid a long narrative of "spiritual convictions" and "divine teachings" and "great awakenings," some knowledge of the condition of the countries through which it passes may be gleaned; and the truth that stands most prominently out, to our apprehension, is, that nothing has been effected by the missionaries themselves towards their amelioration—no progress made, for example, in African civilization—bearing anything like a due proportion to the amount of benevolent labour, and ungrudged money, expended in the cause. Mr. Backhouse is willing to think otherwise,—in that spirit of generous calculation and determined zeal which reckons a little for gain, and will not count the cost; but philanthropists less pre-occupied than himself must see, with pain, the large amount of benevolent impulse and effective energy that is diverted from quarters morally and physically famishing for the need of their streams, to water the desert, and yield only such fruit as advocates, earnest as Mr. Backhouse, are able, with all their earnestness, to show. This excellent gentleman, when he "left his children young," that he might seek the helpless stranger, left many another interest behind him, too, that had a claim upon his sympathy, and would have fared the better for his care; and, when he returned from his long wandering in the desert, the spiritual fortunes of its dark races had so filled his mind, that the sons of suffering in his own country, like his children after the flesh had grown out of his mind.

With all the zeal and earnestness of the religious connexion to which our author belongs, we doubt, too, if the members of that respectable body are exactly the apostles to break up a desert like the African. The quietism of the sect—that peculiarity of its religious mind which reserves its ministrations—waits for immediate influences, ere it ventures to teach—is a very different champion from the untiring spirit of proselytism, which "in season and out of season" is prepared with its testimony. The church militant (of whatever creed) should be ever ready for the battle of its faith. The weapons of conversion should be always at hand, and the lamps ever burning. It was their irresistible activity of mind that cleared the moral wilderness before the march of the Jesuits. The religion of the Friends is of a character too contemplative, a temperament too subdued, for the missionary task;—perhaps it may be added, that the profound dogmas of the faith are presented by them in forms of too extreme nakedness and simplicity, for the apprehension of savages. Some curious examples of this hesitation and "waiting upon the Lord," are given in the progress of our author's narrative;—one at the very outset of his course, had nearly occasioned a turning back when his hand was fairly on the plough. Frequently, when the people are assembled for religious teaching, he refrains from addressing them, for want of the present inspiration: and having, in Africa, set out in search of a distant station, the road to which was nowhere mapped, and no one about him could point out, he and his companions fell in, after about a fortnight's travelling—through a country where, if any one directed them "a short distance westward," they usually concluded their observations with "*Verder*

is onbekend, (further is unknown,)" with a young man, who was able to give them important information:—which they resolved to follow—"*unless, upon further deliberation, we should feel such mental uneasiness as to induce us to think such a proceeding would be wrong.*"

Uncertainties of purpose and movement like these, are not for the conquest of the desert—physical or mental:—but, leaving such considerations, we must draw upon the volume for examples of such pleasant material as it contains.

From the Australian Colonies, our author's first visit was to the Mauritius—the capital of which island is thus described:—

"The town of Port Louis is beautifully situated on the west side of the Mauritius, in a cove formed by a series of basaltic hills, portions of which are woody: they vary in height from 1,058 to 2,639 feet. The Pouce, *Thumb*, which lies directly behind the town, is the highest point. The lower portion of many of the houses is of hewn basalt, and the upper portion of wood; others are entirely of wood, painted. The streets are rather narrow; they are laid out at right angles, have foot-paths with basaltic curbstones, and are macadamized. Many of the houses have little courts in front, well stocked with fine trees and shrubs, and beautiful Date and Cocoa-nut Palms. There are magnificent Acacias, with large, yellow flowers, as well as Tamarinds and other trees, in some of the streets; and Bananas, Caladiums, Marvels of Peru, and many other striking plants, on the border of a stream from the mountains, that runs through the town. An open space, like a race-course, lies behind the town; it is called *le Champ de Mars*, and is bordered by several large villas, built in a style of neatness and elegance, like those in the neighbourhood of cities on the continent of Europe."

The description of the burial grounds of Port Louis is worth extracting:—

"I walked to the Cemetery, which is at a short distance from the town, and near the sea. It is approached by a long avenue of the Filao, *Casuarina lateriflora*, a leafless tree from Madagascar, attaining to a considerable height, and having drooping branches, clothed with green, slender, pendant, jointed, rush-like spray, through which the wind whistles with a mournful sound. The place of sepulture is divided into several compartments, to accommodate the prejudices of the living, for these even separate the ashes of the dead. The main burial-ground is surrounded by a wall, and another separates the portion occupied by persons of white skin professing Christianity, from that in which the coloured people are interred! So strong is the prejudice that alchemy has nursed! Both the burial-grounds of the Whites and Blacks contain a curious jumble of trees, gay shrubs and flowers, and tombs. Some of the trees harmonize well with the place; others, such as the Cocoa and Date Palms, the *Badianier*, *Banana*, *Pawpaw* and *Pomegranate*, yield edible fruits. *Roses*, *Ipomeas*, *Clitorias*, *Poincianas*, *Marvels of Peru*, and other plants, of the gayest blossoms, are growing amongst the graves; many of which are also ornamented with nosegays, in jugs of various kinds, standing loose, but unmolested, or let into the masonry. The graves are chiefly of masonry, but vary from the rudest heaps of earth, heaped with little wooden crosses, with or without inscriptions, to gorgeous tombs bearing epitaphs of high panegyric; in which, however, the fear of God is generally absent from the catalogue of virtues. But this is not the case in every instance; for amidst this motley multitude, of all nations, kindreds, tongues, and people, (the Mauritius being one of the great inns of the Southern hemisphere, and inhabited by various races of Europeans, Asiatics, and Africans,) the mortal remains of Harriet Newell, well known as having been a distinguished servant of Christ, lie entombed.—In a sequestered corner, I observed a poor creole widow, ornamenting a grave, recently occupied, probably, by the husband of whom she had lately been bereft; and who that has been bereft of an affectionate partner could witness the sight and not feel for the widow? The Chinese have also a burial-ground here: it is much hidden from public view, though only separated from the burial-grounds of the white and the coloured population by a wall. The graves are

of raised masonry, with stones about two feet high, and fifteen inches wide, walled into the north end. Most of these stones have three perpendicular rows of characters engraved on them, and coloured with red paint; and upon their tops, confined by a rude stone, are laid a few folds of blank paper, or of paper forming three or more separate leaves, with several marks cut in them. Some of the tombstones have the engraving, on marble tables, let into the basalt. A sort of altar, with a marble tablet let into it, having many characters engraved upon it, of much smaller size than those on the tombs, is fixed into the wall of the adjacent burial-ground, from which it forms a projection. Contiguous to this, is a sort of double, semicircular wall, with copings, having the space intervening between the walls nearly filled up to the coping of the inner wall. In this intervening space, there are many pieces of paper, deposited in the same manner as upon the tombstones. On the centre of the coping of the inner wall, a round flat stone, painted red, and about a foot across, is placed. Below it are portions of wax, showing that candles have been burnt here, where it is said their priest is stationed when a corpse is brought for interment, while he performs some sort of burial service. Hard by, there is also another semicircular wall of smaller dimensions, which we were informed was used by the poorer people. The number of Chinese in Port Louis is considerable: they are said to be industrious, but much addicted to the reception of stolen goods. The burial-ground of the Malays is fenced with *Agave americana*, an aloe-like plant, and *Opuntia Ficus Indica*, which is green, leafless, and grows with broad, flat, spinous, oval joints. A burial place for the lowest classes is open to the foot of the passenger; and to complete this universal Golgotha, underneath the wall of one of the burial-grounds is the place where horses are shot!"

In June, 1838, Mr. Backhouse landed in Table Bay, with his friend Mr. Walker; and made immediate preparations for those travels in the interior, which extended over nineteen months, and included all the Christian stations within and beyond the colonial frontier. As we have hinted, his proceedings are too exclusively of a religious character to furnish, in any large amount, the fitting materials of a paper like ours. The narrative of them supplies the same dark picture of humanity which is drawn in so many another page of history—weakness trampled on by strength—and growing into strength itself, that it may trample on weakness in its turn—the emancipated slave taking from his old oppressors, with his freedom, the trick of their oppression, for use against his humbler fellow man. The Boors of Southern Africa have such contempt for the Hottentots, that they will not "condescend to call them when they want their services, but whistle to them as they would to their dogs." It is not long since "the Hottentot might not look his oppressor in the face, when speaking to him." The colonists "would not, at that time, allow a Hottentot to eat any victuals over which a thanksgiving had been pronounced." The minister of Zwolendam could not get the Hottentots, at Riversdale, admitted into the church, to share in his ministrations. At Piton, in the Mauritius, an example is given of the same tyrannical spirit working in the breast of the newly manumitted:—

"A coloured man, who had just obtained his freedom, was accosted with usual familiarity by one of his former comrades, still in bondage. The freed man haughtily signified his disapprobation of such conduct, and on the other asking the reason, he inquired in creole French, 'Do you not see that I am become a white man?' To this the unsophisticated slave replied, 'Look in the fountain, and behold your face;' on which the liberated man rejoined, 'But observe the shoes upon my feet!' Slaves were not allowed to wear shoes in the Mauritius, nor were apprentices!"

The spread of knowledge in the desert can alone combat a spirit like this; and its evil is, happily, one of the lessons common to the teaching of all the sects who are seeking to

spread religion in the African wilderness. Something towards the civilization of the people, in this and other respects, has been done,—and is a most important result of the missions. It is impossible, as we have said, to withhold the tribute of our respect (whatever difference of opinions there may be as to the direction or value of their labours) from men, who, resigning all old and pleasant associations, are content, for conscience sake, to labour, all their days, in a desert like this,—amid a desolation too dreary, in places, for the very jackal,—where even the *beautiful* itself, is, at times, a terrible character to read, and the tale of sterility is written in language no less fair than the aloe and the mesembryanthemum. The following are amongst the *agreeable* incidents that break the monotony of this desert:—

"A few months ago, Roger Edwards, a Missionary residing at the Kuruman, had a narrow escape from lions, near this place. He was on his way from the Colony; and after resting at Daniels Kuil, he had set out, with the intention of riding to the Kuruman in the night, having a led horse, and being accompanied by a Hottentot, who rode a mare, by the side of which a foal was running. Just as he arrived at some large, scattered bushes, a sudden impression on his mind induced him to alight from his horse, saying to the Hottentot, that they would stop there. The Hottentot accordingly dismounted; they took off their saddles, knee-halters the horses, turned them loose to feed, and lay down under one of the bushes. They had not been there many minutes, when the mare screamed; they listened, and a lion roared; they raised themselves upon their knees; the horses having got clear of their knee-halters, galloped past them, taking the road towards Kuruman; the mare followed as fast as she could, but her knee-halter had been too tight to allow her to release herself from it; they were followed by four lions, at full speed; a fifth stopped short, and gazed for a time at the travellers, as if deliberating whether to spring upon them, or to follow the others. The moon was just setting, but it still cast sufficient light to enable them to distinguish the terrific beast. The Hottentot in alarm, began to make a noise, but was immediately hushed by the Missionary, whose knees, though kneeling, smote together, and who said, if ever he prayed in sincerity, it was then, though it was a silent prayer. He thought five minutes might elapse while they were thus situated, but remarked, that it might not be so much, as, under such circumstances, minutes necessarily seemed long. The lion at length sprang upon the path, and went after the others. The cries of the mare were heard at a distance, more and more faintly, till they ceased. The Missionary and the Hottentot agreed to listen, lest the lions should return; as, in case of such an event, a few low trees near them afforded a forlorn hope of escape; but overpowered by fatigue and fear, they fell fast asleep, and did not awake till dawn of day."

The following is Mr. Backhouse's account of some of the Caffrarian superstitions:—

"The Caffer doctors, or Amagigba, are divided into three classes. 1. The Smelling-doctors, who pretend to detect the operations of witchcraft in calamity, disease, &c. 2. The Handling-doctors, who administer medicine, but connect with it dancing, drumming, interrogations, and responses, by which they pretend 'to handle the disease.' 3. Doctors of medicine, who trust to pharmacy alone for the cure of disease.—These are distinct from the persons who profess to be makers of rain; and from others who are called Amatola, or in the singular, Itola, who practise augury by burning certain roots. Almost the whole of the Caffer doctors are of the Fingo nation. The following superstitions are common among the Caffers:—In case of a person being drowned, oxen are sacrificed to the spirit of the waters. A man crossing a river, asks its spirit's leave; in travelling, he casts a stone to a heap on the left hand, and in returning, to another on the opposite side of the path, considering himself strengthened, he knows not how, by this process. Many of these heaps are to be met with, but some of them have not been added to for a long time, the people becoming suspicious of such practices. A man going

on a doubtful message, knots a few blades of grass together on his path, to render his journey propitious. When entering a wood to hunt, the Caffer asks wisdom, in regard to the object of his pursuit, of the elephants and leopards.—The customs show strongly, that although no knowledge of a supreme Being has been traced among the Caffers, they have nevertheless a strong belief in spiritual influence, and this belief being misdirected, exhibits itself in gross superstitions."

To the long list of ingenious methods by which man has endeavoured to evoke the spirit, Truth, from the weakness of the flesh, may be added the following:—

"These insects (ants) are brought out of the woods in bags, for the purpose, and are turned out upon the naked bodies of the parties to be tortured, who are made fast upon the ground, with their arms and legs extended. Occasionally, water is sprinkled among the ants, to make them bite more keenly. Confession of guilt is thus extorted from innocent persons, who confess, to escape further suffering."

The following is a curious anecdote:—

"William Fynn had lately visited the Fikani Chiefs, N'capai, and Faku, accompanied by one of the Wesleyan Missionaries. Their errand was to obtain a promise of peace for the land; and in this object they succeeded. When with N'capai, he told them, that he had heard that the English could convey their ideas by means of writing, and he expressed a wish to see a proof of this marvellous power. One of them was sent out of the way, and, in his absence, something was concealed under the foot of a man, in a particular place, of the chief's own selecting. A note was then written, describing the thing concealed, and the place where it was hid, and sent by a messenger to the absent party,—who came from his retreat, and following the description in the note, went directly to the man, lifted up the described foot, and produced the concealed article, to the amazement of the Chief,—who remarked, that none of their doctors could do such a thing!"

Mr. Backhouse is of opinion that, as yet, the Slave emancipation in the Cape Colony has yielded few of the fruits which await the fullness of time. Wages are almost nominal; and the servant has got little, for the present, by the great event, beyond security for his person. The most discouraging circumstance, however, would seem to be, that their physical privations have prevented the coloured people from rising to the dignity of their new character; and that many are voluntarily abandoning the privilege conferred by British law, to follow the Boors in their emigration. On the prospects of the colony, as an eligible field for British emigrants, our author expresses himself as follows:—

"I had some conversation with a person high in office, on the subject of encouraging emigration to the Cape Colony. Many persons were very urgent in promoting this measure, especially merchants, who felt painfully, a great depression in trade, which had now existed for a considerable period; they were conscious that the arrival and settling of emigrants would produce a beneficial influence upon their business: but my impression is, that South Africa does not hold out much encouragement for emigrants, unless it be, to the Natal country, which, I expect, will be found capable of supporting a considerable population; and it may properly be occupied, if the emigrant Boors be first settled there, and the rights of the few scattered groups of the Aborigines properly secured. As regards the parts of the country through which we travelled, I have endeavoured to describe them faithfully; and though I should regard the settlement of a few respectable Englishmen in them, as an advantage to the natives, and to the older colonists, yet I think that most unbiassed Englishmen would unite with me in the sentiment, that it would be best to allow such a country as the Cape Colony, to be gradually filled up with the offspring of its present settlers, and its native inhabitants."

Commending these remarks to the consideration of our readers, we must take our leave of Mr. Backhouse's rather ponderous volume.

Reformers before the Reformation.—[*Reformatoren*, &c.] by Dr. C. Ullmann. 2 vols.—It is pleasing to meet with a book on ecclesiastical matters written in a fair and candid spirit, and as such we can recommend the work of Dr. Ullmann. It was not required to prove that all the essential principles of the Reformation, however suppressed for a time, were as old, at least, as the Romish Church, and that even in the middle ages they found valiant supporters; but he has brought together several notices of men of a true reformative spirit, whose fame has been eclipsed by that of Luther. Dr. Ullmann is candid in his appreciation of the Romish system in the middle ages; but, while he admits the good intentions of many reformative minds in it, we think he has shown with sufficient clearness the impossibility of inward renovation without an organic disruption. The scene of warfare between the most heterogeneous elements which the Church system of the middle ages presents to us exposes the error of those who regard that part of history as a time of repose and establishment of certain principles, or who would pass a sweeping judgment, either for good or for evil, upon such a considerable period of time, inclusive of so many opposite movements of the human mind. To speak correctly, either in praise or condemnation of those times, we should first define to what institutions, tendencies or movements we refer. Nor should we forget that several of the movements of those days which assisted the progress of humanity were made in opposition to the institutions then reigning, and certainly cannot be fairly attributed to them as their legitimate offspring. As a thousand various plants, some poisonous and others salutary, grow together in the night, so many different principles and tendencies took root and grew in those ages and among those various institutions which we throw together, as into a chaos, under the title of "The Dark Ages." The highest claims of despotism, and the most extreme assertions of liberty, were found in the same Church. Dr. Ullmann has furnished a sufficient reply to the shallow question, "Where was your religion before Luther?" for he has shown that it was in the Romish Church. It was in the mind of that quiet man, *John von Goch*, who lived and died an unpersecuted reformer, in the bosom of the Church, though his writings were afterwards condemned by the Tridentine Council. His principles found a bolder and more able advocate in *John von Wesel*, whose work on "The Authority of the Clergy" makes the assertion, that "when this extends beyond the preaching of the word of God and the exercise of charity, it becomes a tyranny;" and that "the lowest member of the Church, on scriptural authority, may contradict even the statements of the Pope himself, when they are without that authority." In reply to the question of the Pope's power of granting plenary indulgence, he says—"I, John von Wesel, though the least of professors of the Holy Scriptures, protest, above all things, against saying or writing anything which contradicts the true faith as it is contained in the Scriptures." In his old age, Wesel was tried for heresy, and, worn out with persecution, was compelled to recant. Dr. Ullmann's book is written in a just and moderate spirit. He does not regard everything in the Church of the middle ages as "only evil continually;" but contributes facts to show that the Lutheran reformation was the unavoidable result of a long succession of protestations disregarded and reformations vainly attempted within the Church.

List of New Books.—Adamson's Joseph and his Brethren, 12mo. 3s. 6d. cl.—Truman's Farmers' Account Book, 4to. new edit., 1844, 5s. hf. bd.—Ellen Middleton, by Lady Fulkerton, 2nd edit. post 8vo., 3 vols., 11. 11s. 6d. cl.—History of Sweden, by Anders Fryxell, edited by Mrs. M. Howitt, 3 vols. post 8vo. 11. 1s. cl.—Lucy Hardinge, by J. Fenimore Cooper, 3 vols. post 8vo. 11. 11s. 6d. bds.—The Two Admirals, a Tale of the Sea, by J. F. Cooper, author of "The Pilot," "Red Rover," "Water Witch," &c., 12mo. 6s. cl.—The Annual Register, Vol. LXXXV. for 1843, 8vo. 16s. bds.—Major's Walton's and Cotton's Angler, new edit., with entirely new illustrations, small 8vo. 13s. cl.; ditto, large paper, 8vo. 11. 16s. bds.—Manual of the Practice of Medicine, the Result of Fifty Years Experience, by W. C. Hufeland, 12mo. 15s. bd.—A Guide to the Practice of Homeopathy, translated and compiled in Alphabetical Order from the German, by E. Hamilton, 12mo. 3s. cl.—Lectures to Farmers on Agricultural Chemistry, by Alexander Petzholdt, small 8vo. 7s. 6d. cl.—Christian Retirement, or Spiritual Exercises of the Heart, by the author of "Christian Experience," 14th edit. 12mo. 6s. 6d. cl.—The West Riding Almanack, for 1845, with South-west View of York Cathedral, 12mo. 6d. swd.—Perfect

Peace, Letters Memorial of the late J. W. Howell, Esq., of Bath, 3rd edit. 12mo. 2s. 6d. cl.—Luther and Calvin, or the Spirit of the Reformed Church, by J. H. M. P. Aubign, D.D., 12mo. 9d. swd.—Paley's Ecclesiologist's Guide to the Churches of Cambridge, 8vo. 2s. swd.—Dr. Barrett's Course of Psalms, new edit., 18mo. 1s. 6d. cl.—Ecclesiastical Antiquities of the Cymra, by the Rev. John Williams, M.A., 8vo. 14s. cl.—New Testament History, square, 2s. 6d. hf. cl.—Sacred History, Old and New Testaments together, square, 4s. 6d. cl.—Songs and Hymns for the Nursery, by the author of "Fairy Power," 4to. 5s. 6d. cl.—The Star of the Court, or Maid of Honour and Queen of England, Anne Boleyn, by Miss S. Bunbury, 8vo. 5s. cl., gilt edges.—Pride and Prejudice, by Miss Austen, Vol. II., 18mo. 1s. 9d. swd.—Tate's Counting House Guide, Part I., 8vo. 4s.; ditto, Part II., 8vo. 6s.; ditto, two Parts in 1 vol. 8vo. 9s. 6d. cl.—Lectures on Osteology and the Ligaments, by B. B. Cooper, with eleven plates, 8vo. 12s. cl.—The Public General Acts of the Session of Parliament, of 7 & 8 Vict., 1844, 8vo. 4s. 6d. swd.—The Metropolitan Buildings Act, 7 & 8 Vict. c. 61, with Notes, by Standish G. Grady, Esq., 12mo. 2s. 6d. cl.—Lunley's Factory Act, 12mo., reduced to sell, 2s. bds.—Emancipation of the Negroes in the British West Indies, by R. W. Emerson, crown 8vo. 6d. swd.—The Recreation, for 1845, plates, 12mo. 5s. cl.—The New Phantasm, by Henry Morley, Part I. 1s.

OUR WEEKLY GOSSIP.

THE meeting of the British Association has gone off with more than usual spirit. York was indeed the nursing mother of the Association, and welcomed back her wandering children with hearty good-will. Everything was done, and without parade or ostentation, to make the time pass pleasantly. On Thursday evening the General Meeting was well attended, and the presence of many ladies gave life to the scene. On Friday Earl Fitzwilliam, as president of the Yorkshire Philosophical Society, gave a dinner to the more distinguished members of the Association, and in the evening Mr. Lyell delivered a discourse on the Geology of North America. On Saturday the Very Remarkable Dean Cockburn entertained the Geologists, not exactly after the Fitzwilliam fashion, but with a new theory on the original formation of the earth (see p. 903); and subsequently excited a lively interest amongst the thoughtless and the ignorant by publishing it, as if to justify and oblige the long-suffering Section by the exposure suggested for his adversaries by Job—the writing of a book. At three o'clock Lieut. Carte exhibited some rocket experiments, and his inventions for saving life in case of shipwreck; and in the evening Dr. Falconer described the gigantic Fossil Tortoise of the Sivalik Hills, North India. On Monday the Mathematical Section was crowded (the Mechanical and some other Sections having adjourned till one o'clock to give the members an opportunity of being present), to hear the Earl of Rosse's account of his telescope (see p. 900); at three o'clock the General Committee assembled to decide on the next place of meeting (see p. 909); and in the evening there were a concert and ball, which were well attended. On Tuesday a Conversation, and on Wednesday, at a General Meeting in the evening, the usual complimentary votes of thanks were moved and agreed to, and the Session closed. The philosophical results will, of course, appear in our Reports of proceedings in the Sections. We were not quite correct in our conjecture last week, that it had been found impossible to complete the abstracts of papers read on Thursday in time for Saturday's publication. A second parcel was, it appears, delivered at the Station by half-past two in the morning, and before the arrival of the three o'clock train, which contained the remaining Reports and the President's address; but through neglect somewhere, it could not be found at the London terminus, and did not reach us until Saturday.

The letter of Mr. Tegetmeier (*ante*, p. 886), as might have been expected, has given rise to much discussion, and some speculations to which we are most happy to put a stop, by publishing the following communication from one of the honorary secretaries:—

I beg leave to inform your correspondent, who signs himself "W. Tegetmeier," that the regulation which he quotes was made after, and in consequence of, the disgraceful attempt to misapply the funds of the association, which already has been very properly commented on in your pages.

I have the honour, &c.

GEORGE GODWIN, Jun., Honorary Secretary.

So far well—but we must emphatically repeat, that there are certain other facts notoriously before the public, suggesting an inference which (as administrators of a society professedly seeking to raise and extend the character and influence of Art,) the Committee should have been eager to rebut. It was known that a prize-holder, or parties on his behalf,

had been going from painting room to painting room—seeking to make such an arrangement for the disposal of the prize money in the professed selection of a work of art, as should secure to the prize-holder the return of a portion of the money; and it was known that he or they had finally arranged with Mr. Lance, for his picture. The taint of the early part naturally extended itself over the whole of the transaction; and the public were logically compelled to a suspicion, which the character of this or the other artist does not sufficiently answer. Neither is the voucher of the Committee sufficient. They "exempt"—and we, from our knowledge of the artist's character, may, also, individually exempt—Mr. Lance "from any suspicion of collusion" with the Maecenas of Burton-upon-Trent; but the doubt, which had been raised by the direct testimony of facts, should have been met by evidence of a full and satisfactory investigation; and the artist ought not to have been left to rely upon his character, against a chain of circumstantial inference. Such seemed to us the plain state of the case, and we held to that opinion. The character of the artist is involved, as well as that of the Lincolnshire patron. It cannot, we think, be necessary that we, for whom the discussion of interests like these is by the terms of our publication a duty, should disavow all personality in any of our remarks. We argue the matter merely as an abstract question; we speak of the Committee only as an administrative body, knowing and thinking nothing of individuals. To Art-Unions we have no unreasonable objection—nor to associations of any kind aiming at the benefit of artists or of art, if they can be so modelled as to reconcile the personal and present interests of the one, with the great and abiding interests of the other. We are as anxious as any one to see a taste for the Arts spread through a larger public than has been hitherto embraced in their influence; but cannot advocate that lateral extension which is obtained by lowering the elevation. We gladly hail any scheme for giving the artist employment—but not at the expense of his art. The art may be served by encouraging the artist—but the artist, the true artist, is much more benefited by maintaining the dignity of the art. It is, we know, difficult in any social scheme whatever—particularly where money is one of the agents—altogether to exclude the spirit of jobbing; and the Saunderses of society will come for half-pence, into the very temple of Art, in spite of the utmost watchfulness: but guarantees as perfect as can be devised should be taken, not only for the exclusion of these, but for the maintenance of a high tone in Art.

Mr. Charles Southey has published the following rejoinder to Mr. Murray, whose letter we gave last week:—

In reply to Mr. Murray's letter, which appeared in your paper on the 21st inst., I have only to remark that my object has been completely obtained. The *Life of Oliver Cromwell* will now be read by the public, not as a substantive biography; but as an article written for publication in a review: as such I can have no wish to underrate its value. With respect to the legal question, this is no place for its discussion; but I may remark respecting the letter of my father, which Mr. Murray has in his possession, that Mr. Southey, when speaking of the republication of any articles in the *Quarterly Review*, always (as Mr. Murray must know) took it for granted that he was to revise those articles, and share the profits. I remain &c. CHARLES C. SOUTHEY.

Cockermouth, Sept. 25th, 1844.

This letter is not quite candid. It is unfair in Mr. Southey to state that the "Life of Cromwell" will now be read only as a review article, when Mr. Murray had already embodied the statement that it was such, in the publication itself—and to take leave of the subject with the insinuation that the publisher had left him to "obtain his object" of extorting that admission by this correspondence. With regard to Mr. Charles Southey's qualification of the permission given by his father to Mr. Murray, (as the latter states) to publish certain articles separately, *whenever he might think proper*, it is difficult to see how the author's revision was to be obtained, on a publication taking place after his death; and the money question must depend on the terms of the consent which Mr. Murray pleads. If it be, in that respect, unconditional, we have no doubt whatever that—leave to change the form and add the name having been given—the copyright, with all its beneficial incidents, is in Mr. Murray.

The subscription for the public walks and gardens of Manchester has been swelled by a sum of 200l.,

given in a spirit which seems to us to offer so fitting an example of the proper recognition of the people's services by the interests served,—of that fair and honourable interchange of good will, which tends to enlist the multitude in the cause of order,—that we think it useful to record it. A letter from the Secretary to the Phoenix Fire Office of London announces the gift, in the following terms:—

The benevolent measure, entertained by the leading merchants and manufacturers of Manchester, for the promotion of the health and comfort of its industrious population, by the establishment of public walks and gardens, has come under the notice of our board; and the board, feeling that during its long and extensive connexion with the trade of Manchester, the Phoenix Company has had frequent experience of the good disposition of the labouring classes, when their personal services have been required, in cases of fire, are desirous to avail themselves of the opportunity which the measure alluded to presents, of adding their assistance towards the success of a measure so well calculated to effect the object contemplated. I am therefore instructed to request that the name of the Phoenix Company may be added to the list of contributors for the sum of 200*l*.

The statue of the illustrious Adolphe Duquesne was inaugurated, on the 22nd ult., at Dieppe, with all the accustomed honours—and something more. The roll of the drums, the thunder of the batteries, and even the people's shouts of *Vive Duquesne!*—though he has been long dead—might have been expected. They are the established sensibility for such occasions; but for the especial sensibility of the Dieppois we were not prepared—nor, we should say, the statue either. "At the aspect," says the Norman reporter of the ceremonial, "of this fine likeness of the greatest of our ancestors, *all hearts were melted, and tears of joy flowed from all eyes!*"—At Lyons, it has been determined to erect a statue to the memory of the famous Chancellor of the University of Paris, under Charles VI., Gerson—to whom is attributed the well-known work *L'Imitation de Jésus Christ*.—At Munich, on the 12th ult., the casting of the head of Schwanthaler's colossal bronze statue of *Bavaria*, was successfully achieved, under the direction of Mr. Miller, and according to the instructions which, our readers know, Stieglmayer had carefully drawn up for the work in the days that preceded his death. The statue, they will remember, is to measure sixty-six feet in height:—and the prodigious mass of burning metal for the head, weighing upwards of a hundred and fifty quintals (a quintal is a hundred weight), is described as flowing into the mould with extreme rapidity, and a sound like the rumbling of thunder.

The publishing season is now again commencing, and Messrs. Longmans have announced, among others, the following forthcoming works on subjects of interest; viz. 'The Life, Progresses, and Rebellion of James, Duke of Monmouth, &c., to his Capture and Execution, with copious Biographical Notices,' by G. Roberts: in 2 vols.—'Moore's Irish Melodies,' in imp. 8vo. with 154 Designs, by D. MacLise, Esq., R.A. This is a great undertaking for an artist; but it is stated, that it has been years in preparation, and elaborated with great care. It will be issued in several editions.—'Lectures on Painting and Design,' by B. R. Haydon, with designs drawn by himself on the wood, and engraved by E. Evans.—Among translations, 'Ranke's History of the Reformation,' by Mrs. Austin, made from the second edition, is worthy of note.

From a letter addressed to the *Journal des Débats*, by the Baron de Frenilly, formerly Councillor of State, and a Peer of France, we learn that two French authors are severally engaged in a literary labour of very difficult achievement for any other than a British writer, "A Parliamentary History of Great Britain," M. Duvergier de Hauranne,—and the Baron himself, the latter of whom has been occupied on the work for twenty-three years.

The *Jamaica Dispatch* of the 10th ult. reports, on the authority of letters from St. Juan de Nicaragua, the almost total destruction of that city, by an earthquake.

Accounts from Dresden mention that Lieutenant-General Lyoff, "Aide-de-camp to the Emperor Nicholas, and a musical amateur of some fame," has arrived there, to superintend the production of a new opera *Bianca e Gualtieri*, which he has written for the Royal Italian theatre of that city. At the German Opera in the same city, by way of doing honour to Meyerbeer and Spontini, both of whom are in Dresden, the *Vestale* and the *Crociato in Egitto* have been put in rehearsal, after a suspension of many years—the

latter for the first time in a German dress in Saxony, after the translation made by the Baron de Liechtenberg for the theatre of Berlin. To these musical notices, we may add, that the opera composed by Meyerbeer for the opening of the new Lyric theatre in that latter capital, is entitled 'The Hussites before Naumberg.' In this work there is said to be a departure from the form of German opera, as hitherto practised—by the introduction of accompanied recitatives, as in the great French operas, and simple recitatives, as in the Italian ones. At Brunswick, the Singing Academy was to give a grand festival on the 29th and 30th ult., under the direction of its citizen Spohr,—with 1,000 performers, 700 vocal and 300 instrumental. The Director's Oratorio of *The Fall of Babylon* was to be the first day's performance; and the programme for the second consisted of the same composer's fifth symphony and Berlioz's overture to *Waverley*.

GREAT ATTRACTION.—DIORAMA, REGENT'S PARK. THE TWO PICTURES now exhibiting represent the Interior of the Abbey Church of St. Ouen, at Rouen; and an Exterior View of the Cathedral of Notre Dame at Paris. Both Pictures are painted by M. Renoux, and exhibit various novel effects of light and shade.—Open from Ten till Five.

MUSIC AND THE DRAMA

DRURY LANE.—The stipulation for evening costume in the dress circle, and the introduction of stalls in the pit, are attempts to assimilate Drury Lane to an opera house that we hope to see followed up by corresponding arrangements behind the curtain. The encroachment on the pit elicited, at first, some opposition; but the hisses of the non-contents soon subsided. After 'The Bohemian Girl,' which the audience enjoyed as much as ever, came M. Albert's grand ballet of 'The Corsair'—new it cannot be called, since it was produced at the Italian Opera some seasons back; but it is new to the mass of playgoers; and the story, being familiar to all readers of Byron, is rather in its favour. Three tedious acts of Greek pirates rushing to and fro among Turkish guards and scared harems, with two divertissements introduced to supply the deficiency of dancing in the business of the scene, is rather too much of ballet pantomime; for though the stage was well and picturesquely filled, and exhibited some striking tableaux, there wanted interest to sustain the flagging attention. The grand attraction, however, was Mdlle. Adèle Dumilâtre, who personated *Gulnare*. Her form and style are as ethereal as when she floated across the scene at Her Majesty's Theatre, and her *à plomb* is more perfect; neat execution, coupled with a slender figure, not too tall to be graceful, gives to her movements such lightness and facility, that the charm of spontaneous impulse and pleasurable ease is thrown over her greatest exertions. The pantomime of Mdlle. Dumilâtre is less noticeable than her dancing; but in the *pas de séduction*, with which *Gulnare* wins the old Pasha to spare the Corsair, she showed power of expression. Miss Clara Webster, as *Medora*, has only to dance a Spanish *pas*, which she does very nicely; and Mdlle. Delbes, a pupil of M. Albert, displayed agility and neatness of execution in a new and lively Polka, and a *pas de divers genres*, with M. Delferier. M. Desplaces, from the *Académie Royale*, is a clever and intelligent pantomimist, though with no great variety of expression. M. Montessu is an expert dancer. These, together with M. Albert, and our old favourites, Payne and Howell, make up a very efficient *corps de ballet*. On Tuesday Miss Delcy reappeared in her father's version of 'Cinderella,' but with less success than might have been anticipated from her early promise, after a five years' sojourn in Italy. Her pleasing manner gained her more admirers than her vocalization, though her tremor was such that great allowance should be made for the *débutante*; we therefore reserve criticism for a future occasion. A Mr. D. W. King, who appeared as the *Prince*, displayed an equal want of grace, animation, and vocal refinement; and Mr. S. Jones, who has no one requisite for a *buffo*, was thrust into the part of *Baron Pumpolino*, though the company boasts of five basses: in short, the opera altogether went off very lamely; such performances as this are calculated to damage the reputation of the management most materially, besides being unattractive.

HAYMARKET.—This theatre on the opening night presented nothing new but a bright and elegant "act-

drop," painted by Mr. Marshall; but on Wednesday Vanbrugh's 'Confederacy' was revived, with a cast so strong in many points, and costumes and scenic accessories in such good keeping with the fashion of the period, that the experiment was successful. We cannot but wish that managers were not reduced to the necessity of falling back on comedies of that licentious age, which, in proportion as they are relished by the public, will tend to confirm the coarse taste that characterizes the mass of modern audiences, and can only gratify the more refined portion in so far as they serve to develop the talents of the performers, which might be much better employed if we had dramatists to write for them. The plot being merely one of intrigue, serving to exhibit the heartless profligacy and sordid cunning of a set of vulgarities, who caricature the follies and vices of the "people of quality," whom they prey upon—is not worth describing; neither are the characters, for, as no one of them has a redeeming trait of goodness, they are mere impersonations of social villainies. As a satire upon the manners and habits of a dissolute age it has no moral force, for *Dick Amlet*, the greatest scoundrel and hero of the play, is rewarded with an heiress and a fortune, instead of the halter he merits; and in any other point of view, it is a false and disgusting picture of human nature and society. *Flip-panta*, the waiting-maid, who is the pivot of all the intrigues, is played by Madame Vestris, with vivacious ease and saucy significance that never flags, though she is almost constantly on the stage; and Mrs. Glover, as *Mrs. Amlet*, one of those leeches that fatten on the humours of fashion, portrayed with unctious the mercenary mother, whose fondness for her son fluctuates with his chances of fortune. Mrs. Nisbet, who has retired from the stage, and is about to change her name, was missed in the would-be fine lady; the part did not suit Miss P. Horton. Miss Julia Bennett played the hoyden with a girlish abandon that was charming for its naïve sprightliness, and Farren, as *Moneytrap*, looked the usurer in every lineament, though he appeared too old and ascetic for a seducer; and Charles Mathews, as *Brass*, the valet and comrogue of *Dick Amlet*, showed more address, and shone forth with more lustrous assurance than his master, who found a sorry representative in Mr. H. Holl.

SADLER'S WELLS.—We announced last week that Shakspeare's historical play of 'King John' would be produced here on Monday, and have now to report that it is got up with a degree of spectacular effect scarcely exceeded by Mr. Macready's doings at Drury Lane. Whether this be politic management at a small theatre, or finally conducive to dramatic revival, we say not; but we hope that the management will remember that they are forming the taste of a suburban audience. Mr. Phelps is not only a modest and intelligent man, but a skilful and able performer; we have now seen him in a large round of characters, comic as well as tragic, and conceived an increased estimation of his general abilities; this, however, only renders us more solicitous that he should so use his growing influence as to subvert the higher ends of the drama. He is an actor of intense passion, and in the more pathetic passages of a part gives a tone of reality to the action that commonly transports the audience into the precise spirit of the scene. He has now established a reputation which places him in the front ranks of his profession; and therefore he should beware how he treads in the steps of another. The production of 'King John,' in this expensive style, has already rendered him liable to the charge (somewhat unjustly, it is true,) of imitating Mr. Macready, not only in the getting up of the drama, but in the performance of the character. Mr. Phelps must aim at originality in both respects; and he will then secure not only a temporary success, but permanent renown. Mrs. Warner surpassed herself in Lady Constance. Her ambition seems roused to do full justice to her powers, a point of which, on some occasions, she has been too neglectful. This revival, of which we have spoken freely, has been not only highly successful, but literally brought overflowing audiences, and must, from its magnificence, continue for some time to cram the theatre nightly. As prosperity, however, is more perilous than adversity, our cautions may not be pronounced in vain.

FOURTEENTH MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

[From our own Correspondents.]

THURSDAY, SEPTEMBER 26.

SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE.

President.—THE EARL OF ROSSE.

Vice-Presidents.—Prof. McCULLAGH, Rev. Dr. ROBINSON, Rev. Dr. WHEWELL, Prof. WHEATSTONE.

Secretaries.—Prof. STEVELLY, Rev. W. HEY.

Committee.—The Very Rev. the Dean of Ely, The Astronomer Royal of England, Sir D. Brewster, Sir W. R. Hamilton, Col. Everest, Capt. Sir J. Ross, Prof. Forbes, Prof. Walker (of Oxford), Mr. W. Hopkins, Rev. H. P. Hamilton, Messrs. W. S. Harris, E. Hodgkinson, R. Hunt, J. Lee, W. L. Newman, Prof. Phillips, Mr. J. S. Russell, Rev. Dr. Scoresby, Col. Sabine, Messrs. J. J. Sylvester, F. Talbot, Capt. Johnson, Mr. F. Ronald.

The PRESIDENT, on taking the chair, briefly observed, that the first papers which were usually laid before the Section, were Reports drawn up at the request, or at the expense of the Association. Of these some had arrived, and others were promised in the course of the week; but he regretted to add, that one was prevented from being laid before them by afflicting circumstances in the family of the gentleman who had kindly drawn it up.

Sir D. BREWSTER then gave a provisional Report on the hourly Meteorological Observations carried on at Inverness, at the expense of the British Association, by Mr. Thomas Mackenzie. It appeared from this Report that the hours of mean temperature for the whole year were 8^h 30^m and 7^h 35^m, the interval between which is 1^h 15^m, which is called the critical period, and which is a constant quantity. This value of the critical interval at Leitir was found to be 1^h 15^m, which was the average of some years' observations; and it is interesting to observe, that the very same amount of the critical interval has been found at Inverness, in a much more northern latitude.

The PRESIDENT remarked, that Meteorological observations required the atmosphere to be in a very peculiar state, in order to insure accurate definition. He believed it was Struve who first remarked, that whenever the temperature of the night sunk much below the mean of the preceding 24 hours, no accurate definition of objects was to be expected.—Dr. ROBINSON said, the hygrometrical state of the air was of much consequence for astronomical observations: he found that it required to be very near the point of saturation, as a difference between the wet and dry bulb thermometers of more than a degree or two precluded all accurate definition, the brighter stars having then a tendency to throw out scintillating lines; and it was only in the moist state of the air that they appeared distinct in themselves, although surrounded by faint coloured rays.—Rev. Dr. SCORESBY remarked how one branch of physical research bore upon other branches. He believed that the hour at which Lord Rosse found that he could best test the accuracy of figure given to his splendid reflectors was that which Sir David Brewster had ascertained to be the time of mean temperature for the 24 hours.—Lord ROSSE said, that the test being the formation of a distinct image of a watch-dial placed at a considerable elevation, say 100 feet, above the tower, it was necessary, in order that there should be no tremor of the air, that the temperature within and outside the tower should be as nearly equal as possible, and that this was pretty much the time of the mean temperature of the day—about 20 minutes past nine in the morning.

'On the Analogy of the Existencies or Forces, Light, Heat, Voltaic and ordinary Electricities,' by JOHN GOODMAN.—The existencies, light and caloric, having by the labours of M. Melloni, Dr. Forbes, Mrs. Somerville, and others, been shown as analogical, and the identity of the electricities being established, Mr. Goodman proposed to exhibit the connecting link between the phenomena of caloric and electricity, to the properties of which (the former) the voltaic fluid most nearly approaches. The term existencies is here employed by the author in contradistinction to the ordinarily received opinion that caloric, light, &c. are only effects or phenomena resulting from the motion of material bodies.

'On a Principle in the Theory of Probabilities,' by Prof. Young.—Let $p_1, p_2, p_3, \dots, p_n$ be the respective probabilities of happening of n independent events: then the following general principle will have place, viz.:—

$$p_1 + p_2 + p_3 + \dots + p_n = \text{the prob. of one of the events at least happening.}$$

$$+ \text{the prob. of two at least happening in conjunction.}$$

$$+ \text{the prob. of three at least.}$$

$$\vdots$$

$$+ \text{the prob. of all happening together.}$$

This general principle, Mr. Young observed, has not hitherto been noticed. It affords an intelligible interpretation of the sum of the probabilities of any number of independent events; and it is, moreover, useful in enabling us very readily to determine certain compound probabilities when others are already known.

'On Diverging Infinite Series,' by Prof. YOUNG.—The general principles sought to be established in this paper are,—1. Whenever an infinite series becomes divergent for particular numerical values, what has generally been called the generating function of the series requires a correction which cannot be disregarded without increasing an error infinite in amount. 2. And that so far from such series being, as usually affirmed, always algebraically true though sometimes arithmetically false, considered in reference to the generating function; on the contrary, they are always algebraically false, though sometimes arithmetically true—true, namely, in those cases, and those only, for which the algebraic function omitted becomes evanescent.

Prof. McCULLAGH communicated some remarks on an attempt lately made by M. Laurent to explain on mechanical principles the phenomenon of elliptical polarization; and he showed that this attempt had failed. M. Laurent supposes the particles of the luminiferous ether not to be simply material points, but to have dimensions which are not insensible when compared with their distances; and on this hypothesis he deduces a system of differential equations, the integrals of which he conceives to represent the phenomenon in question. The integral given by M. Laurent is, however, absurd, though this circumstance was not noticed by M. Cauchy, in the remarks and comments which he made on M. Laurent's memoir. The true integral of these equations (supposing them to be correctly deduced) was shown by Prof. McCullagh to indicate motions of the ether which do not correspond to the observed phenomena.

Mr. E. HODGKINSON gave an account of some further experiments 'On the defect of Elasticity of Rigid Bodies.' These experiments originated in the suggestion that possibly some of the results which Mr. Hodgkinson had communicated at Cork (see *Athen. No. 827*), had originated in the friction caused by the supports of the extremities of the bars on which the experiments were performed. He had therefore, in these later experiments, placed strong friction wheels as supports for the ends of the bars; he had also changed the mode of measuring the deflection. He had previously used a wedge graduated on the side; he substituted for this a fine screw with a divided micrometer head, by which he could measure the 10,000th part of an inch of a deflection. He then gave the numerical details of the sets taken by various bars after they have been loaded and then relieved. The most striking general results were, that the index of the power of the load to which he found the set taken most nearly proportional was 2; that every load, however trivial, caused a set, and that this set did not entirely disappear when the bar was given time to recover its state, but in general diminished greatly.

Dr. SCORESBY inquired if Mr. Hodgkinson had tried whether a vibratory motion excited among the particles of the bar would enable them to recover their original arrangement.—Mr. HODGKINSON had not, but promised to attend to the hint.—Dr. ROBINSON suggested that the vibratory motions should not be excited with violence sufficient to cause mechanical derangement of the particles.—Lord Rosse stated two facts bearing on Mr. Hodgkinson's investigations; one, that the standards which had been made to replace those destroyed by the burning of the House of Commons had been found to alter very slightly but decidedly their dimensions, after having been finished with the greatest care. The other, that cannon were never permitted to be discharged more than 400 times under ordinary circumstances, for after that they were deemed unsafe.—Dr. ROBINSON stated that a fact

which had always appeared very strange to him received a probable explanation from what he had just heard. It was found that the platinum standard of a metre which had been constructed under the superintendence of the Academy, and which was a square prism, each of whose four faces, therefore, was entitled to be considered as the standard metre of France, when examined many years afterwards, had no two of its sides of exactly the same length: this was supposed to have arisen from the carelessness of the artist employed in its construction, who had accordingly been much censured. He now deemed it highly probable that it had been originally constructed perfect, but had altered its own form. He also mentioned a case in which the glasses of a telescope having been confined by adjusting screws to their places, to which it was necessary for the perfection of the instrument that they should be brought with extraordinary precision, the images of the fixed stars were found to form a cross of light; and it having occurred to him that the confining screws might, by altering the relative positions of the particles, affect their optical action on the light, it was found upon loosening them, that the irregular image disappeared.—Sir D. BREWSTER detailed many examples of the manner in which pieces of glass, being subjected to strains, by the derangement of their molecular structure, polarized light, showing zones of coloured spaces, with dark bands along the neutral parts, where the particles retained their natural arrangement. These delicate tints were found by him to vary in course of time; and a very curious fact was, that if cuts were made by a diamond along the dark neutral spaces and the glass then divided, the parts were found to possess a structure precisely similar to the piece of which they were fragments; but the tints, though exactly similar, were much fainter.

FRIDAY.

'On the Meteorology of Toronto, and its comparison with that of Prague, in Bohemia,' by Col. SABINE.—The observations at Toronto were made during the years 1841 and 1842, on every day except Sundays, Christmas-day, and Good Friday, at intervals of every two hours. Since 1842 they have been made at intervals of an hour. For the purpose of rendering this communication more interesting, Col. Sabine had compared these Toronto observations with those made by M. Kairl, at the Observatory at Prague, in Bohemia. Col. Sabine entered into a comparative description of those two stations, both situate at a distance from the ocean between 300 and 400 miles in the middle of large continents. But there is one important difference, that in Europe we enjoy a climate of higher mean temperature, in proportion to the latitude, than they have in America, or the isothermal lines descend lower in America than in Europe. Thus the latitude and elevation above the sea of Toronto and Prague stand thus:—

	Latitude.	Elevation.
Toronto.....	43° 39'.....	330 feet.
Prague.....	50° 05'.....	582 "

Difference... 6° 26'.....252 "

Prague should be colder on account of its elevation, 0°·8 Fah.

Mean Temperature of Toronto, 44°·4 } Difference 40·3.

Prague... 49°·7 }

Difference of Temperature corrected } Prague warmer

for difference of Elevation } 50·1.

Prague being 5°·1 warmer than Toronto, although its latitude is 6° 26' higher. Col. Sabine then drew attention to a table of the diurnal oscillation of temperature, and explained it. The very small differences in the results at the several hours of the two years, were remarkable, as showing that we have already determined the diurnal march of the temperature, as far as it can be obtained by two-hours observations, with a close approximation to the truth. It also appeared, that the climate of Toronto is warmer during the hours of the day, and colder during those of the night, than that of Prague. Another diagram exhibited the mean monthly and annual temperature in each of the two years, compared with Prague, and a mean temperature of twenty years. He then exhibited a diagram showing the elastic force or tension of the vapour in the atmosphere of those two places, and the degree of humidity produced by it, together with their diurnal and annual oscillations. At Toronto the degree of humidity was greatest at the coldest hour of the

day, and least at the hottest with remarkable regularity, the curve of humidity harmonizing with that of temperature, but being inverted in its range. The average state of the air at Toronto was that it contained 0.78 parts of the moisture required for its saturation. The curve of mean tension of the vapour had an ascending and descending branch in exact harmony with that of temperature. He then pointed out some remarkable deviations from this agreement, and particularized the climate of Tre-vandrum, in the East Indies. After examining the mean monthly humidity and tension, he proceeded to consider the atmospheric pressure, and compared the barometrical ranges at Toronto and Prague, and showed how remarkably similar were the phenomena which presented themselves in this subject over the two continents; and noticed a case in which, at each place, within the compass of a very few days, the highest and the lowest observed height of that instrument occurred, being apparently part of one great atmospheric wave. Col. Sabine strongly recommended that hygrometric observations should always accompany those of the barometer; and that reductions should be made and registered at the time, otherwise unreduced observations would be so unaccountable as to become worthless.

A discussion followed, chiefly upon the theoretic views adopted by Col. Sabine, all the speakers concurring in the value of the observations, and the skill and ability displayed in their discussion.

'On a new process of Magnetic Manipulation, and its action on Cast Iron and Steel Bars,' by the Rev. Dr. SCORESBY.—Dr. Scoresby found that it was impossible, by the ordinary process, to communicate the full charge of magnetic influence to very hard shear-steel or cast steel bars, or such as were best suited for retaining it, and therefore best for the manufacture of compasses. But he was led, by the theoretic views he holds, to try the effect of interposing thin bars of soft iron between the charging poles of the magnet, and the steel bar to be magnetized; this answered effectually, and Dr. Scoresby exhibited to the Section several experiments, whereby, with the old process, the magnetism imparted to the steel bars was very trivial, but by the adoption of the new process, a remarkably strong charge was communicated by one single stroke of the balls of the magnet over the bar.

Dr. ROBINSON exhibited and described the Orthochronograph, invented by the late Mr. Lowman, which, however, the Earl of Rosse, Prof. Stevelly, and others, considered less accurate than other known instruments.

'Account of an attempt to establish the Plastic Nature of Glacier Ice by direct Experiment,' by Prof. J. D. FORBES.—These experiments were made in the month of August last upon the Mer de Glace of Chamouni, with the view of establishing that the increasing velocity of a glacier, from the side towards the centre, takes place (when the declivity is not very great) by the insensible yielding of one portion of the ice past another, without great rents at measurable distances producing discontinuity in the motion. The only permanent marks left by such differential motion are the veins, or blue-bands, to which the author has, in his published writings, attributed such an origin. A transverse line was drawn partly across the glacier in the most compact part which could be found, which was quite devoid of open crevasses for a considerable space. The theodolite was planted over a fixed mark in the ice at the extremity of this line nearest to the lateral moraine of the glacier; and the relative, or differential, velocity of the parts towards the centre were determined at short intervals, and have been projected in a curve. This curve was shown to the meeting. It is evidently a continuous curve, convex towards the valley, and not a zigzag motion, such as must have resulted from distinct rents parallel to the length of the glacier. The length of the line, originally straight, whose deformation was observed, was 90 feet, and the ordinates of the curve were determined by accurate measurements at forty-five stations two feet apart. The experiments on the continuous flexion of the transverse line were extended over a longer period, at points 30, 60, 90, 120, and 180 feet from the theodolite, with similar results. The author concludes, 1st, that the sliding of the mass of the glacier over itself by insensible

gradations cannot be denied; and that it is sufficient to account for the observed excess of progress of the centre above the sides of the glacier; 2nd, that this differential motion takes place in the direction in which the veined structure exists, and that it is impossible not to consider the one phenomenon as dependent on the other.

The discussion on this paper occupied two hours, and till the meeting closed, when it was arranged that it should be resumed on Saturday, at the sitting of the Section, when the subject again occupied the attention of the Section for upwards of three hours.

In consequence of the more than usual interest which attached to the proceedings of this Section on Monday, when the Earl of Rosse described the construction of his gigantic Reflecting Telescope, we shall so far deviate from our custom, of reporting the proceedings according to the order of their occurrence, as to give this paper at once.

Long before the hour of meeting, the room was crowded to suffocation, and many ladies, and even gentlemen, could not gain admittance. The address was illustrated by a model, with its supporting piers and galleries complete, and by a working model of the grinding and polishing machine.

The EARL OF ROSSE commenced by stating, that the Council having intimated their opinion that some account of the experiments in which he had been engaged on the Reflecting Telescope would not be altogether devoid of interest, he would endeavour to describe, as briefly as possible, the manner in which he had attempted to accomplish the object in view, and the principal results obtained. When, about the year 1826, he first turned his attention to this subject, he considered that the knowledge of our own system might be almost considered complete. There were, no doubt, some portions of it, as the motions and distances of the satellites of Uranus, the masses of some of the planets, the rings of Saturn, and some others, which yet required elucidation, and would doubtless amply reward industrious research; but on the whole, he conceived that our ordinary instruments, aided by the nice contrivances for accurate measurement which the perfection of modern art had introduced, were amply competent to aid in this branch of research the many men of genius who were engaged in it. But a new and a most interesting field had been opened to the view, and partially explored, by the indefatigable zeal of the distinguished Herschel and his no less distinguished and accomplished son. The subject of double and multiple stars promised a rich harvest, if our instrumental powers could be enlarged to any considerable extent; and another field, no less promising, was that of nebulae, of which some of those examined by the Herschels seemed to lay open to the contemplation of the astronomer regions in comparison with which our entire sidereal sphere might be considered as a mathematical point. Now, in examining these, he did not mean to deny that accurate measurements were of much importance—indeed, of the very highest; but it must be obvious, that before we can measure we must be rendered capable of seeing. Here, then, he found the strongest inducement to attempt to improve the instrument by which this was to be accomplished. Two objects required to be kept in view: first, to give the telescope sufficient aperture to secure a sufficiency of light; secondly, to increase to a sufficient extent the magnifying power. On these depended what might be called the optical power of the instrument, but particularly upon the former. For instance, the large telescope, of which a model stood before them, to be used effectually, must have a magnifying power of 300 times. Now, another instrument, very inferior in size, might have a much higher power, but, from the vast quantity of light which it collected into the image, objects in it became distinct which could not be at all seen by those of inferior aperture. The next question he had to determine was, whether he should attempt refractors or reflectors. Just at that time very large and very fine discs of the proper glass had been produced upon the Continent, and a strong hope was entertained of bringing the refracting telescope to a degree of perfection which had been hitherto rather hoped for than attained. But, upon a calm balancing of all the difficulties which op-

posed their construction, he determined to attempt the improvement of the Newtonian reflector, and that notwithstanding it was well known that an error of form of the reflector produced an error in the image more than five times as great as the same error in the refractor would produce. It was to the steps by which he attained this object that he was now about to direct the attention of the Section.

'Having concluded that upon the whole there was a better prospect of obtaining by reflection, rather than by refraction, the power which would be required for making any effectual progress in the re-examination of the nebulae, the first experiments were undertaken, in the hope of obviating the difficulties which had previously prevented the application of the brilliant alloy which may be formed of tin and copper in proper proportions to the construction of large instruments. The manner in which the difficulty had been met, was, by adding an excessive proportion of copper to the alloy, but the mirror was no longer susceptible of a durable polish, and, when used, its powers declined rapidly. It appeared to me, therefore, to be an object so important to obtain a reflecting surface which would reflect the greatest quantity of light, and retain that property little diminished for a length of time, that numerous experiments were undertaken and perseveringly carried on. After a number of failures the difficulties appeared to be so great that I constructed three specula, where the basis of the mirror was an alloy of zinc and copper in the proportion of 1 zinc to 2.74 copper, which expands with changes of temperature in the same proportion as speculum metal. This was subsequently plated with speculum metal, in pieces of such size as we were enabled to cast sound. These specula were very light and stiff, and their performance upon the whole satisfactory; but they were affected by diffraction at the joinings of the plates; and although very brilliant and durable, defining all objects well under high powers, except very large stars, still as the effect of diffraction was then perceptible they could not be considered as perfect instruments. In the course of the experiments carried on while these three specula were in progress, it was ascertained that the difficulty of casting large discs of brilliant speculum metal arose from the unequal contraction of the material, which in the first instance, produced imperfections in the castings, and often, subsequently, their total destruction; and it appeared evident, that, if the fluid mass could be cooled throughout with perfect regularity, so that at every instant every portion should be of the same temperature, there would be no unequal contraction in the progress towards solidification, nor, subsequently, in the transition from a red heat to the temperature of the atmosphere. Although it was obvious that the process could not be managed so that the exact condition required should be fulfilled, still, by abstracting heat uniformly from one surface (the lower one), the temperature of the mass would be kept uniform in one direction, that is, horizontally; while in the vertical direction, it would vary in some degree as the distance from the cooling surface. These conditions being satisfied, we should likewise have a mass which would be free from flaws, and, when cool, would be free from sensible strain; nothing could be easier than to accomplish this, approximately, in practice; it would be only necessary to make one surface of the mould (the lower one) of iron of a good conducting material, while the remainder was of dry sand. On trial, this plan was perfectly successful; there was, however, a new, though not a very serious defect, which was immediately apparent—the speculum metal was cooled so rapidly that air-bubbles remained entangled between it and the iron surface; but the remedy immediately suggested itself, by making the iron surface porous, so as to suffer the air to escape; in fact, by forming it of plates of iron placed vertically side by side, the defect was altogether removed. It only then remained to secure the speculum from cooling unequally, and for that purpose it was sufficient to place it in an oven raised to a very low red heat, and there to leave it till cold, from one to three or four weeks, or perhaps longer, according to its size.

'The alloy which I consider the best, differs but little from that employed by Mr. Edwards: I omit

the brass and arsenic, employing merely tin and copper in the atomic proportions, namely, one atom of tin to four atoms of copper, or, by weight, 58·9 to 126·4. As it was obviously impossible to cast large specula in earthen crucibles, the reverberatory furnace was tried; but the tin oxidized so rapidly, that the proportions in the alloy were uncertain; and after some abortive trials with cast-iron crucibles, it was found, that when the crucible is cast with the mouth up it is free from the minute pores through which the speculum metal would otherwise exude; and therefore such crucibles fully answered the purpose. It was very obvious that the published processes for grinding and polishing specula, being in a great measure dependent on manual dexterity, were uncertain, and not well suited to large specula; accordingly, at an early period of these experiments, in 1827, a machine was contrived for the purpose, which has subsequently been improved, and by means of it a close approximation to the parabolic figure can be obtained with certainty; as it has been described in the Philosophical Transactions for 1840, it is unnecessary to do more than to point out the principle on which it acts. The speculum is made to revolve very slowly, while the polishing tool is drawn backwards and forwards by one eccentric or crank, and from side to side, slowly, by another. The polishing tool is connected with the eccentrics by a ring, which fits it loosely, so as to permit it to revolve, deriving its rotatory motion from the speculum, but revolving much more slowly. It is counterpoised, so that it may be made sufficiently stiff, and yet press lightly on the speculum; the pressure being about one pound for every circular superficial foot. The motions of this machine are relatively so adjusted that the focal length of the speculum during the polishing process, or towards the lateral end of it, shall be gradually becoming slightly longer, and the figure will depend in a great measure upon the rapidity with which this increase in the focal length takes place. It will be evident that a surface, spherical originally, will cease to be so, if, while subjected to the action of the polisher, it is in a continual state of transition from a shorter to a longer focus; in fact, during no instant of time will it be actually spherical, but some curve, differing a little from the sphere, and which may be made to approach the parabola, provided it be possible in practice to give effect to certain conditions. An immense number of experiments, where the results were carefully registered, eventually established an empirical formula, which affords at present very good practical results, and may hereafter, perhaps, be considerably improved. In fact, when the stroke of the first eccentric is one-third the diameter of the speculum, and that of the second eccentric is such as to produce a lateral motion of the bar which moves the polisher, measured on the edge of the tank, equal to $\frac{1}{27}$ the diameter of the speculum, or referred to the centre of the polisher, of 1·7, the figure will be nearly parabolic. The velocity and direction of the motions which produce the necessary friction being adjusted in due proportion by the arrangements of the machine, and the temperature of the speculum being kept uniform by the water in which it is immersed, there remains still other conditions, which are essential to the production of the required result. The process of polishing differs very essentially from that of grinding; in the latter, the powder employed runs loose between two hard surfaces, and may produce scratches possibly equal in depth to the size of the particles: in the polishing process the case is very different; there the particles of the powder lodge in the comparatively soft material of which the surface of the polishing tool is formed, and as the portions projecting may bear a very small proportion to the size of the particles themselves, the scratches necessarily will be diminished in the same proportion. The particles are forced thus to imbed themselves, in consequence of the extreme accuracy of contact between the surface of the polisher and the speculum. But as soon as this accurate contact ceases, the polishing process becomes but fine grinding. It is absolutely necessary, therefore, to secure this accuracy of contact during the whole process. If the surface of a polisher, of considerable dimensions, is covered with

a thin coat of pitch, of sufficient hardness to polish a true surface, however accurately it may fit the speculum, it will very soon cease to do so, and the operation will fail. The reason is this, that particles of the polishing powder and abraded matter will collect in one place more than another, and as the pitch is not elastic, close contact throughout the surfaces will cease. By employing a coat of pitch, thicker in proportion as the diameter of the speculum is greater, there will be room for lateral expansion, and the prominence can therefore subside, and accurate contact still continue; however, accuracy of figure is thus, to a considerable extent, sacrificed. By thoroughly grooving a surface of pitch, provision may be made for lateral expansion contiguous to the spot where the undue collection of polishing powder may have taken place. But, in practice such grooves are inconvenient, being constantly liable to fill up: this evil is entirely obviated by grooving the polisher itself, and the smaller the portions of continuous surface, the thinner may be the stratum of pitch.

"There is another condition, which is also important, that the pitchy surface should be so hard as not to yield and abrade the softer portions of the metal faster than the harder. When the pitchy surface is unduly soft, this defect is carried so far that even the structure of the metal is made apparent. While, therefore, it is essential that the surface in contact with the speculum should be as hard as possible, consistent with its retaining the polishing powder, it is proper that there should be a yielding where necessary, or contact would not be preserved. Both conditions can be satisfied by forming the surface of two layers of resinous matter of different degrees of hardness; the first may be of common pitch, adjusted to the proper consistence by the addition of spirits of turpentine, or rosin; and the other I prefer making of rosin, spirits of turpentine, and wheat flour, as hard as possible, consistent with its holding the polishing powder. The thickness of each layer need not be more than one-fortieth of an inch, provided no portion of continuous surface exceeds half an inch in diameter, the hard resinous compound, after it has been thoroughly fused, can be reduced to powder, and thus easily applied to the polisher, and incorporated with the subjacent layer, by instantaneous exposure to flame. A speculum of three feet diameter thus polished, has resolved several of the nebulae, and in a considerable proportion of the others has shown new stars, or some other new feature."

In conclusion, Lord Rosse exhibited drawings of the nebulae, as figured by Herschel, and also as they appeared in the telescope constructed by his Lordship. Fig. 88 of Herschel, or 2 Messier, and 21 h. 25 m. δ -1° 34' south, many of the stars into which it is reduced by his telescope, are as large as those of the first magnitude to the naked eye.

Fig. 81, Herschel, the bright nebula near ζ Tauri, figured by Herschel as perfectly elliptic and resolvable, but no stars seen, is seen in the telescope, with three-feet aperture, as a rather oval cluster of stars, with projecting filaments of stars; some of these filaments extending considerably, so as to give something of the idea of a scorpion.

Fig. 29 of Herschel. The ring nebula of Lyra, shows in the three-feet telescope, seven stars, one triple. It is an annular cluster, with fringes, and the nebulous-looking centre in patches.

Fig. 45 of Herschel, a planetary nebula, is also seen as an annular cluster.

Fig. 26 of Herschel, the "Dumbell Nebula," is seen as an irregular cluster, or rather two in juxtaposition, and nothing of the exact elliptic termination of Herschel's figure.

Dr. ROBINSON and the MARQUIS OF NORTHAMPTON briefly addressed the Section.

THURSDAY.

SECTION B.—CHEMISTRY AND MINERALOGY.

President.—Prof. T. GRAHAM.
Vice-Presidents.—MARQUIS OF NORTHAMPTON, Prof. GROVE, Dr. DAUBREY.
Secretaries.—Dr. L. PLAYFAIR, Messrs. F. SOLLY, T. H. BARKER.
Committee.—Prof. Liebig, Messrs. M. Faraday, M. Matteucci, Rev. W. V. Harcourt, Messrs. R. Hunt, W. West, Rev. J. Walton, Messrs. W. Lucas, W. S. Ward, R. Warrington, F. M. Jennings, J. B. Ibbetson, Dr. Tilley, Dr. Percy, Mr. J. P. Joule, Prof. Kuhlman, Dr. Hamel, Rev. T. Exley, Messrs. H. L. Pattison, T. Peersall, Dr. B. Clancy, Sir J. V. B. Johnston Bart., Sir J. P. Bidleau, Bart., Dr. E. Schumk, Dr. A. Smith, Mr. F. Talbot.

'On the Mineral Springs and other Waters of

Yorkshire,' by W. West, Esq.—The results of analysis of the waters of Harrogate and other places were detailed with great minuteness, and the districts from which the waters were collected described. The quantity of sulphate of soda existing in some of these springs was very great, and to this salt was principally ascribed their medicinal qualities.

Mr. HUNT drew attention to the fact discovered by him in Cornwall, that the quantity of muriate of soda in the waters of that county, increased greatly with their depth, until, at the depth of 312 fathoms, he had found as much as $6\frac{1}{2}$ per cent. of that salt.—The Rev. W. V. HARCOURT stated, that the waters of an artesian well in the neighbourhood of York, gave evidence of a very great increase, in the quantity of its saline ingredients as it increased in depth, giving, at its greatest depth, 48·3 grains of the sulphates of magnesia and soda per gallon.

Prof. DAUBREY communicated a verbal account of the phosphorite rock in Spanish Estremadura, which he, in conjunction with Captain Widdington, R.N., had last summer undertaken to explore. He stated its occurrence in one solitary mass, penetrating clay-slate, the dimensions being at most 16 feet in width, its length along the surface of the rock extending to about 2 miles, whilst its depth is unexplored, but certainly considerable. He stated its composition to be about 80 per cent. triphosphate of lime, and about 14 fluoride of calcium, and pointed out the first cause of the secretion of so large a mass of both these substances in the older rocks in order to supply two necessary ingredients to bones and other animal matters. He stated his having detected fluorine in all the bones and teeth of recent as well as of older date which he had examined, and suggested that as a rock of such a composition could hardly fail to be useful as a manure, if it were found in an easily accessible locality, it would be worth the while of geologists to search for veins of this mineral in the older rocks of this and of other countries, where there was a facility of transport.

Mr. PEARSON observed, that the presence of fluorine in bone had, in all probability, escaped detection from the fact that the fluato of lime was soluble in muriatic acid, from which, by evaporation, it could be obtained in crystals. He had tried experiments with phosphorite as a manure without any appreciable advantage.—Mr. SOLLY stated, that in some experiments on the comparative advantages between the phosphorite and the phosphate of lime in bone, the superiority was decidedly on the side of the phosphorite, which was applied in the state of fine powder, mixed with the soil. He then suggested for inquiry, whether fluorine might not be formed by the plants themselves.—Prof. GRAHAM remarked that fluorine could not be detected in the ashes of plants. He considered that the fluorine in bone was derived from water.—Dr. CARPENTER made some remarks on the differences observed under the microscope in the molecular structure of the phosphorite and the phosphate of lime in bone.

'The Influence of Light on the Germination of Seeds and the Growth of Plants,' by Mr. R. HUNT.—The author postponed a full Report on this subject until he had been enabled by the experiments of another year to reconcile, if possible, some very anomalous results. Several experiments were described, all of which went to confirm the statement originally made by Mr. Hunt, that light prevented healthful germination, and was detrimental to the growth of the young plant. The author now gave the results of some experiments made with a view of determining the question of the production of the woody fibre. He finds that plants growing under the influence of light which has permeated blue and red media, contains more water than those which had been grown under the influence of rays which had permeated yellow and green absorptive media. On the contrary, the formation of woody fibre is greatest in the plants grown under the yellow and green relatively as follows:—

Those under the blue leaving 7·16 per cent. of woody fibre	
the red	7·25
the green	7·60
the yellow	7·69

Young plants in a healthy state were removed from the garden to the influence of the isolated rays. In all cases, the plants died under the yellow light in a few days; they slowly perished under the influence

of the green, and only grew healthfully under the red and blue light.

Prof. GROVE wished to make some inquiries relative to the supposed existence of a new principle in connexion with light, which was regarded by Mr. HUNT and others as the active chemical agent, to which was to be ascribed all the phenomena of photographic action, and the most genial influence on the growth of the young plant.—Mr. HUNT explained that the luminous calorific and chemical spectra were capable of producing extremely different effects. That the light coming from the sun was not at all equal in quantity to the heat; and that that element was much less than the amount of chemical power. He showed by diagrams, that the quantity of chemical power increased in the spectrum as the light diminished, and that when the light was at a maximum the chemical action was at a minimum. It was also stated, that by the use of absorbent media, light of great intensity could be obtained, which possessed scarcely any chemical power; and on the contrary, that this chemical principle of the solar beam could be obtained in the same way with but a very small amount of light.

Dr. BATEMAN described Mr. Phillips's method of discovering Adulteration in Tobacco.—The basis of this plan is the ascertainment and comparison of the relative proportions of soluble and insoluble matter in tobacco; water being the solvent. Numerous experiments have proved that every kind of vegetable matter has a determinate portion, which is soluble in water; thus rhubarb-leaves range from 18 to 26 per cent., and horse-radish, lettuce, oak, elm, and many others, have their definite limits. This amount, with reference to tobacco, in no case exceeds 55 per cent. of the tobacco; and thus if tobacco be adulterated with matter soluble in water, the extractive or soluble part is increased, whilst the ligneous and insoluble matter are correspondingly decreased. A sample of genuine tobacco, by careful manipulation, affords 50 per cent. of soluble matter, and when another portion of the same tobacco has been mixed with 15 per cent. of soluble matter, the sophisticated article can contain only 85 per cent. of tobacco; and it would be found by experiment to afford to water 57.5 of soluble, and 42.5 of insoluble matter, thus affording proportions for calculating the actual amount of adulteration introduced.

SECTION C.—GEOLOGY AND PHYSICAL GEOGRAPHY.

President—MR. H. WARBURTON.
Vice-Presidents—THE EARL OF ENKINILL, SIR H. T. DE LA BECHE, MR. E. I. MURCHISON (*President for Geography*), REV. PROF. SEDGWICK.
Secretaries—Prof. ANSTED, MR. E. H. BURNBURY.
Committee—The Marquis of Northampton, The Chevalier Schomberg, Mr. E. Charlesworth, Dr. Daubeny, Sir P. G. Egerton, Dr. Falconer, G. W. Featherstonhaugh, Prof. E. Forbes, Prof. J. Forbes, Messrs. R. Griffith, C. Hamilton, J. Heywood, W. Hutton, W. Hopkins, L. Homer, H. Hutton, L. J. B. Ibbetson, F. M. Jennings, C. Lyell, T. Oldham, Prof. Owen, Prof. Phillips, Messrs. S. P. Pratt, T. Sopwith, H. E. Strickland, J. Taylor, Rev. W. Thorpe, Rev. W. Hilton, Rev. W. V. Harecourt, Sir J. V. B. Johnston, Bart., Messrs. H. Strickland, H. Witham, E. Binney, Major S. Clerk.

'Report of the Committee for registering Earthquake Shocks in Scotland.'—The Report is confined as usual to the detail of shocks observed by Mr. McFarlane, at Comrie, in Perthshire. During the last twelve months thirty-seven shocks have been registered, but few were so violent as to produce any effect beyond the neighbourhood of the town. The most intense occurred on Sunday the 25th of August 1843, during the morning service, and was felt simultaneously over more than 100 square miles. The Seismometer at Comrie vibrated $\frac{3}{4}$ inch W.

'On a newly discovered species of *Unio*, from the Wealden strata of the Isle of Wight,' by Dr. MANTELL. The species of *Unio* described was found near Brook, on the S.W. side of the Isle of Wight, imbedded in the laminated clays and sands of the Wealden formation, which compose the line of cliffs between Freshwater Gate and Brixton. They were associated with the wood and branches of coniferous trees, and are considered by Dr. Mantell as affording an additional proof that the Wealden deposit was formed in the bed or delta of the river of the country of the Iguanodon, and not in an estuary of the sea. The extensive layers of *Paludina Cyclades*, and minute freshwater crustaceans (*Cyprides*) must have been slowly and periodically deposited in tranquil water, either the river bed, or inland lakes connected with the main stream. The species of *Unio* hitherto noticed in the Wealden are small and delicate

species, the largest not exceeding two inches in length: the subject of the present memoir, which the author proposes to call *U. Valdensis* on account of its geological habitat, is a very thick and strong shell, several specimens measuring five inches in breadth, three in length, and two in thickness.

A paper was read by Prof. ANSTED, 'On the importance of preserving Mining Records,' and to prove that without parliamentary interference, there is no prospect of obtaining or preserving such records.

Mr. SOPWITH stated, that exact information would not only be conducive to the progress of geological science, but of the highest importance to the general interests of the country. The subject had been brought before the Association at Newcastle: a committee was then appointed, the representations of which to the Government led to the institution of a Mining Record Office, in connexion with the Museum of Economic Geology, and of an officer to take charge of such plans and records as should be deposited there. But, notwithstanding all that had been done, much remained to be done, and he was convinced that the sanction and aid of the Legislature could alone effect a general registration of mines.—Mr. J. TAYLOR described several instances of the evils resulting from the want of such information. On one occasion 80,000*l.* had been expended on a copper mine in Cornwall, which became less productive the deeper it was worked, and was finally abandoned. In this case a minute record was kept of the state of the operations, and the reasons for their abandonment, so as to afford a complete refutation of the pretensions of a company which had been recently formed for the purpose of re-opening the works. In Mexico, on the contrary, workings had become unprofitable on account of their expense, during the war with Spain, a record having previously been made of the state of every part of the mine. These mines had subsequently been drained and re-opened under Mr. Taylor's directions, and the account of them found to be very correct. He was convinced that much loss of life and much expensive litigation might be avoided, if mine-owners were bound by law to keep a record of their proceedings. There ought to be no mystery or secret in mining; it answered no good purpose; in the mining operations of Cornwall for fifty years there had been no secrets; a meeting was held every two months, at which all accounts were made up and made known publicly.—Sir H. T. DE LA BECHE attributed many of the accidents in the mines to the absence of documents respecting old workings and adjacent mines. The Government had done all in their power for the preservation of mining records, but difficulties had been experienced in inducing interested parties to avail themselves of the opportunities thus afforded.

'On the Sections of the Cretaceous and Tertiary Systems in the S.E. of the Isle of Wight, and the bearing of the evidence they afford in the history of Animal Life,' by Capt. B. IBBETSON and Prof. E. FORBES.—Three models had been constructed by Capt. Ibbetson from trigonometrical surveys in order to illustrate the sections of cretaceous and tertiary systems of the S.E. coast of the Isle of Wight. Measurements of all the strata, both tertiary and cretaceous, and tables of their fossil contents, were also laid before the meeting. Reviewing the strata deposited from the cessation of the Wealden to the prevalence of a fresh-water eocene formation in this locality, the authors laid stress on the following facts in the local history of organized nature during that long period:—That the seas in which the lower greensand was deposited, occupied the area described, in consequence of the sudden subsidence of the great Wealden lakes, and presented from the very commencement a Fauna which was truly marine, and most of the members of which began their existence with the commencement of the cretaceous era in England. Almost all the animals which appeared were such as were new to the oceanic Fauna, but among them were many forms representative of other species which had existed in the oolitic ocean. Secondly, that this Fauna continued, though apparently diminishing in consequence of the extinction of species from physical causes, until the commencement of the deposition of the gault, when a new series of animals

commenced, among which a few previously existing species lived on, but the greater part were either representative or peculiar forms. The same system of animal life appears to have continued throughout the remainder of the cretaceous era in this locality, although great differences in the distribution of species, and many species *local in time* occur, depending on the very great change in the mineral conditions of the sea bottom during this epoch. The chalk formation especially presents many peculiar species, owing rather to the zone of depth in which they lived, than a new zoological representation in time. The authors called attention to the assemblage of minute corals, sea-urchins, terebratulae, and *Spondylus spinosus*, in that part of the Culver Section at which is seen the junction of the chalk with flints and the hard chalk, as corresponding to the characters which mark a very deep sea Fauna at the present period. Thirdly, that in the tertiary formation which succeeds there is an entirely new Fauna, distinct as to every species in this locality, though elsewhere connected with the cretaceous strata by the presence of that remarkable mollusk, *Terebratula Caput-Serpentis*, which lives even at the present day. This Fauna, which did not appear until after the deposition of a considerable bed of mottled clays containing no traces of animal life, commences similarly to the Fauna of the two cretaceous periods by a series of clays containing numerous peculiar myaciform shells, and their associated Pectunculi and Ostreae. The earliest fossiliferous bed at Whitcliffe Bay is a most remarkable thin stratum, almost entirely composed of a species of shell-bearing annelid, the *Ditrupea (Dentalium) planum* of the Mineral Conchology, which appears to have lived but a short time and suddenly disappeared. In the midst of these strata beds charged with myriads of foraminifera, probably indicating some change in the sea's depth, appear and cease. The sudden conversion of the sea into a fresh-water lake, indicated by a stratum of *Paludina* clay, its return into a brackish state, and the consequent re-appearance of certain marine animals, its reconversion into a fresh-water lake thronged with myriads of fluviatile mollusca, and the almost momentary influx of salt water during that period, lasting only so long as to enable a race of oysters to live and die away, all render the tertiary strata in this locality highly interesting. From the great zoological break between the eocene and the chalk, the authors conclude that a third or uppermost cretaceous formation, characterized by a Fauna which would link the middle term of that system with the middle term of the tertiary, has disappeared in this locality, whilst they regard the cretaceous system there present, as composed of two divisions, equivalent in time, the older consisting of the lower greensand, and the upper or later composed of gault, upper greensand, and chalks, considered as one system.

Mr. OLDHAM reported the progress of the 'Observations on Subterranean Temperature in Ireland,' undertaken at the request of the Association.—In July 1843 thermometers were placed at the copper mines of Knockmatson Company, Waterford, which are worked to the depth of 774 feet. Of the four instruments employed, one was hung in the open air four feet from the surface; one hung freely in the gallery at the depth of 774 feet; one in the rock at the same depth; and one in the lode or metallic vein. The rock is indurated clay-slate, the ore massive copper pyrites in quartz veinstone. The average of all the readings of these thermometers during eleven months was as follows:—

	At the Surface.	Thermometer at the Depth of 774 feet.		
		Air.	Rock.	Lode.
Average	50.026	57.176	57.369	57.915
Maximum		58.25	58.5	58.5
Minimum		56.	56.5	

Taking the average temperature in the rock as the mean at that depth, and allowing 100 feet for the depth to which the action of solar causes may extend, or to the line of no variation, there is an increase of 7.343 for the depth of 674 feet, equivalent to 1° in 91.82 feet, a rate of increase about one-half as rapid as the rate deduced from a large number of observations in England, which gave an increase of 1° in 45 to 50 feet. Mr. Oldham also noticed the fact, that there was a gradual decrease in the actual temperature, during these observations: the average of

the thermometer in the rock being 57·718 during the first half of the observation, and 57·004 during the latter half, being a decrease of '674 during the eleven months, although more men were employed, and the works more extensive than at the commencement.

FRIDAY.

'Critical Remarks on certain passages of Dr. Buckland's *Bridgewater Treatise*,' by the DEAN of YORK.—[We give but a brief abstract of this communication, as it was published the following day, in the form of a pamphlet, entitled, 'The Bible defended against the British Association!']—The author objects to the theory of the original formation of the earth, and the various subsequent changes in its condition, described by Dr. Buckland, because his theory will not account for the many facts made known by geologists. These facts are, principally, the abundance of limestone rocks in formations of all reputed periods; the absence of a complete series of rocks, as represented in tables of the strata, at any one locality; the non-universality of the coal, lias, &c.; and the inversion of the strata at Malvern and Abberley. He also gives Dr. Buckland credit for many improbabilities, such as the formation of all the strata from the wreck of granite alone by the action of rain-water; the omission of the sea, &c., in his account; the growth of trees on bare granite; and fish living in fresh water,—in water only. The Dean then proposes a theory of his own, "to account for every modern discovery." He supposes that the world continued as it was made for nearly two thousand years,—the land, air, and water being all thickly peopled. He then introduces a series of violent convulsions, continuing for several days uninterruptedly, by which all the strata, from the *Silurian* upwards, were formed. Submarine volcanoes burst through the granitic crust of the earth, and poured their streams of lava into the sea, and torrents of rain descended from the higher lands. The author does not insist on attributing these agencies to natural or supernatural causes. The strata first formed would only contain "a few crawling reptiles, crinoidea, or trilobites;" the second would overwhelm the saurians, who lived on the edge of the waters; the next, "the heavy animals, who, in the flood that is covering the land, are unable to fly fast enough to the hills"—the megatherium, the didelphys, the pterodactylus, &c. Strata would thus be formed every day, the materials arranging themselves according to their specific gravity. The coal he supposes "to ooze out from the side of the volcano," and the plants in it to have been caught by "the shale thrown up high into the air, and falling with velocity to the bottom, carrying down upon the coal the large leaves of ferns, &c., which it meets with in its descent." The lias fossils were sunk to the bottom by the clay suspended in the turbid waters adhering to them; and the oolites were formed out of the "purer lime, tossed and rolled about into little balls." "Lastly, the chalk subsidies and the sand—but little remains for these to inclose—and little is inclosed within them." In this manner a deluge of but a few weeks' duration would, in the opinion of the Dean of York, produce the whole series of the stratified rocks, and explain every discovery which cannot, he says, be accounted for by the theory of Dr. Buckland.

Prof. SEDGWICK rose to offer some comments on this communication. "But before I proceed to do so," he observed, "I think it right to state a few circumstances respecting the principles on which the Association acts, and the motives by which its members are brought together. Our object is, the *comparison of facts*; the sifting of them, by kindred spirits meeting together, in the pure love of truth, for the advancement of science, and thus ascending to higher generalizations, and the knowledge of those laws by which individual phenomena are governed. Every man has generalized to a certain extent, by separating peculiar and individual facts, embodying them in some general conception, and giving it a name. Wherever truth can be expressed in language, it is done as a generalization. As we advance in the discoveries of science, facts multiply so fast upon us that they would become unmanageable, if we could not group them by certain resemblances, or include them under some simple law, which is merely an expression of a general conclusion de-

rived from facts which we know to be true, and from which all those phenomena proceed, as necessary and inevitable consequences. The moment we arrive at the knowledge of such a law we can assume, in a certain sense, a prophetic character, and predict events with certainty, because we know that the Author of Nature is unchanging in his operations, and that the same effects will follow the same causes in times to come as in times past. Astronomical predictions afford a familiar example of the certainty of these conclusions, and, in fact, whenever we act upon *experience* in the most homely affairs, we act on the same principle. We meet together here to extend our generalizations by new facts, or to modify those laws at which we had previously arrived by embodying all the new truths we have attained, so as to bring our generalizations up to the condition of present knowledge. In some cases we have tested our general conclusions so often that we are as certain of their truth as we are of our own existence. There are others in which we have not arrived at any such certainty, and it is exactly such conclusions, and the facts connected with them, that we meet here to discuss. Even in astronomy there are still certain residual phenomena, at present not fully explained; but in a new science like geology, which brings to light such a vast variety of unexpected phenomena, such indications of intense and powerful action, the mechanism of which is but imperfectly comprehended, it is most advantageous that collections of facts, brought here by observers with different views, should be closely examined, in order that one may check another, and that laws of phenomena be made out, before any one presumes to put forth any theory of the earth and its formations. I speak not now of the moral effects of such meetings and discussions, although they are of immense importance, but I speak now of the primary object of this Association, which is the furtherance of physical science, on the principles pointed out. On this ground I hold it certain, that the discussion of broad theoretical questions and cosmogonies, like those now brought before us, is utterly unfit for the present meeting. If this practice be once allowed, any man will be at liberty to overhaul the pages of a volume like Dr. Buckland's '*Bridgewater Treatise*,' pregnant with most important truths, and without any personal knowledge of the subject, or a single new fact to offer, he may raise objections to which it would be impossible to give an adequate reply, because they are drawn from considerations out of the province of facts and observation. To describe all the conditions which the earth has undergone from the primeval days of chaos to the present time, were indeed impossible; and the liability to misrepresentation ought to deter any man from attempting it, did he even suppose he had the means of doing so. Besides, this is not our object, which I again assert to be the examination of facts, either to modify our theories and generalizations, if we have gone too far, or bring into harmonious order our new facts, by some new and noble generalization. We have nothing to do, as members of the Association, with moral or religious or political truths, in which the elements of human passion are so liable to be mingled. Every one who brings a statement of facts to this meeting, asserts his willingness to abide the test of observation and experiment; and when a paper is brought here which deals not with facts, but with theories and cosmogonies, we should reject it altogether, as in its nature unfit for our notice. Its discussion is permitted now (but will, I trust, never be permitted again) out of regard to certain opinions and feelings, in which we participate with the Dean of York, and which not one of us would resign but with life itself. At the same time, we are willing to show, on all proper occasions (though this be a very improper one), that we are not afraid of facing any of the difficulties with which the speculative part of our subject may be surrounded."—So far our reporter endeavoured to follow the remarks of Prof. Sedgwick in the order and words in which they were spoken. The remaining portion of our report must be considered as a short and imperfect abstract of what was said:—With regard to Dr. Buckland's '*Bridgewater Treatise*,' I believe that his account of the successive changes by which the earth has been brought to its present state, substantially re-

presents facts. His account of the original nebulous condition of the earth, is not a wild conjecture, but a probability, suggested by the phenomena of the heavens. We know that at the present day the whole globe is composed of a few elementary substances, taking either a solid, fluid, or vapoury form, and that by an increase of temperature such as we believe to have once existed, they would all be reduced to the last of these conditions. The condensation of such a mass of incandescent vapour by the radiation of its heat, might form a shell or crust about a liquid centre; but he neither says that *all* the solid matter was granite, nor that all the liquid was rain-water. Dr. Buckland proceeds to state that this shell would be composed of granitic and kindred rocks; that is to say, rocks of crystalline structure; not stratified, or arranged in laminae, by the force of gravitation acting on particles held in suspension in a fluid and spread out by currents. Now, it is a fact, that all the lowest rocks with which we are acquainted have some such character. It is true, they contain but a small percentage of carbonate of lime, and some other constituents of the strata formed upon them, but these may have been derived from the waters that covered them, or the interior of the globe; for in such a mass who shall say what are the elements within? Sir Humphrey Davy supposed the interior of the earth to be the reservoir of the metallic bases of the earths; and as the cooling of the earth must have been attended with a diminution of bulk, this crust would inevitably be broken and corrugated, and the fluid contents of its interior from time to time forced out. The objection which the Dean of York has taken to the truth of our tables of the superposition of the strata, is founded on a total misconception of the nature of our investigation, and of the facts of the case. No stratum can be universal, any more than the sea, in which it was formed, can be supposed to have been universal; and as the sea has always been shifting its boundaries, it follows necessarily, that in some places certain terms of the series will be wanting, and a formation of high antiquity be overlaid by one of much more modern date. The sections given by Mr. Murchison only show the strata which appear in the actual escarpments, as seen in ravines and sea-cliffs, and wherever nature has exhibited them; and I affirm, that these sections prove the truth of our arrangements. Even where there are exceptions, they do not vitiate our arrangements; for we can give a rational explanation of them, and, by showing them to be exceptions, they confirm our previous conclusions. The Dean of York objects to Dr. Buckland's account of the formation of the various strata which succeed these first-formed mineral masses, and proposes, instead, a theory of his own, by which, he says, "every phenomenon can be explained;" and as it is one thing to find fault with a theory, and another to propose a better explanation, perhaps it will be well to compare the Dean's hypothesis with the actual facts, in the order he has himself adopted: First, we find a set of strata reposing on those before mentioned, and evidently formed from them by the mechanical action of tidal currents and surf beating upon shores; stratified rocks containing no fossils, either because their structure has been altered by crystalline action, or because they were formed before the existence of organic life—a supposition which appears to be the more probable, since in passing through the successive strata above them, in descending order, we find the number of species, and of types also, gradually diminish, till we arrive at a point where they appear to cease altogether. Upon these again we find sedimentary rocks containing fossils, and beds of limestone, which are nothing more than ancient coral reefs, for we can trace the corals as they grew, and see that they are all absolutely distinct from any now existing; and with these are beds of bivalve shells, not scattered at random and broken by violence, but lying in pairs, where they lived and died, and were quietly entombed. And out of all the multitude of species which then existed, surely some would have survived the changes which succeeded, and still be found in our own seas, if, as the Dean of York supposes, those changes were limited to a few days in their operations. Next to these *Silurian* rocks, as they are called, is the old red sandstone,—a system

many thousands of feet thick in Scotland, most of it being coarse conglomerate, formed of pebbles worn round on a sea coast, and requiring an enormous lapse of ages for their formation. With these are occasionally found beds containing fish of forms strange and unknown at the present day, and supplying new links and analogies to the zoologist in his classification. Passing southward, we find the same series of rocks enormously developed, in Herefordshire and the adjoining counties, becoming finer in their composition, as if leaving the coast, and approaching a deeper sea; and still further south, in Devon and Cornwall, we find the same rocks, occupying the same place in the series, assuming a new mineral type and swarming with animal existence. If we look to other countries, we find still this formation, containing the same remarkable fish, spread over large regions in Russia and America, and, indeed, wherever geological investigations have been carried. In almost all this series of rocks there is no such cementing *lava* streams as the Dean supposes; rocks do occur, though there are numberless examples of disrupting igneous action. With respect to the inversion of strata at Malvern, which the Dean thinks inexplicable by any forces which geologists can bring to bear, it happens to be no uncommon occurrence. In Liege the very miners are perfectly familiar with this circumstance, and the certainty of the fact may be at all times ascertained by following the inverted beds along their strike, till, after various changes and contortions, they at length assume their true position. Passing on towards the coal strata, we find thick beds of limestone and grit, with which the coal is found almost universally to be associated. The extent of the coal formation itself, in various parts of the world, is much more wonderful and difficult of explanation, than its absence from other regions. I cannot stay now to inquire into the causes which promoted its formation at this particular period, but when I remind you that it is thousands of feet thick, that the beds of coal themselves are acknowledged by botanists and chemists to be entirely formed of masses of vegetables swept down into the sea by annual torrents, or the growth of ages in peat bogs and forests, and the deltas of rivers, that it contains the fronds and stems of hundreds of ferns and other plants, all of extinct species, and requiring for their growth a climate widely differing from our own, it does indeed seem scarcely worth while arguing against a theory which attributes these extensive and complicated phenomena to the "mud thrown up by a volcano, and catching the leaves of trees in its descent!" Again, passing on to the new red sandstone, with its tracks of peculiar and extraordinary animals—the *lias*, with its no less wonderful saurians and shells,—not the shells of the present seas—not the crocodile of the Nile or the Ganges, but forms now utterly past away, we must pause for a minute to consider the startling announcement made by the Dean respecting this period. He says, that after the trilobites and crinoidea had been buried by the mighty inundation he had brought over the earth, and after the saurians and other inhabitants of the shore were intertomb, we should expect to find next those "heavy animals who were unable to fly fast enough to the hills, the megatheria, didelphys, pterodactyle, &c." In this selection the Dean has been particularly unfortunate. The megatherium was, indeed, an enormous animal—mightier than any of the present degenerate inhabitants of the earth: he lived by tearing down the trees of the forest, and browsing on the leaves and branches; he was armed with terrific claws, and protected by a skin more dense than that of the rhinoceros; but, unfortunately for the Dean, he was one of the *last caught*, even according to his own hypothesis, and, as we believe, did not exist till ages after, if, indeed, he were not coeval with the earlier races of men. His next example, the didelphys, did certainly appear and perish in the oolitic period; it was, in fact, the earliest warm-blooded animal that existed on the earth,—but what was it? A little opossum, not bigger than a guinea-pig! The third is, if possible, worse chosen than the rest—"the pterodactylus! Why, the pterodactyle was the *flying dragon* of the ancient world, and would have been far enough above the hills ere a flood could overtake him. For

any man so unacquainted with the most familiar facts of our science as to confound together three animals of a different epoch, and so utterly unlike in their physical structure, is itself a portent in the history of geology: nor would such an exposure have been allowed were it not for the considerations before alluded to. As regards the period of time occupied in the formation of the strata, I will mention but a few circumstances. In one part of the oolitic series, we find beds of coralline limestone, separated by a small thickness of clay, and in this clay are multitudes of crinoids, whose bases yet remain fixed to the rock on which they grew: in that little bed of clay is represented at least a period of time sufficient for the growth of these animals. In another formation, the *lias*, I have traced for twenty miles together a deposit of the coprolitic matter of the great saurians of the period, a formation which could only have taken place, tranquilly, during the lives of many generations of those animals. In a newer part of the series, the rocks constituting Portland Island, we find, resting on beds of marine limestone, layers of vegetable soil containing large prostrate trunks of dicotyledonous trees, and portions of their branches remaining upright, and fixed in the earth by their roots; and trunks of plants resembling the recent *Zamia*, standing where they grew, but silicified, and covered up with beds of fresh-water limestone. Here, again, a few feet of strata represent a period of time in which the sea was converted into dry land, the land overgrown by forests; and this again became a fresh-water lake, inhabited by shells allied to species now existing. To the single stratum, therefore, where these trees were found, belongs a period of time sufficient for the growth of a forest. Time would fail me to tell the numerous changes of physical condition, accompanied with corresponding changes in animal organization, which characterize every division of the cretaceous and tertiary strata. The Dean of York, indeed, says, that "little remained for them to inclose, and little is inclosed within them." Here, again, is a strange ignorance of notorious facts, for these are the very strata in which the traces of organic life are most varied and abundant. The conclusions of geologists would indeed be vain if founded on such irrational guesses and absurd hypotheses; but by a steady and humble study of nature, in a subject so vast and comprehensive, we could make but little progress, did we not call in the aid of the zoologist, the botanist, and the chemist, and, paying the utmost respect to their opinions, regulate our conclusions by their evidence. In determining the succession of the strata, or any other problem in our science, we must be content to ascend, step by step, from small assemblages of facts, to higher generalizations, until we obtain the whole sequence. With regard to the succession of animal life, the evidence is so conclusive that no naturalist or competent observer will now deny that new species have continually appeared—not by the transmutation of those before existing—but by the repeated operation of creative power. In his ordinary dealings with the natural world God works by second causes; so that one natural phenomenon may be said to flow directly from another. But when we see successive orders of animal existence, and successive organic types, which once ministered to the functions of animal life, we can only say a living spirit had been breathed into dead matter, far differing from the mere causative of material laws, and that the beings of whatever order were the effect of a direct creative will. In conclusion, the Professor remarked, that what he had stated was as nothing in comparison of the evidence which might be brought forward in support of his argument. There might be difficulties in the dark investigations of science, but the way to throw light upon them was to sift them to the bottom, and not to shut our eyes like frightened children, and think thereby to save ourselves from danger. Truth could never be opposed to itself; and the perception of truth, whether physical or moral, was but a perception of one portion of the will of God. He was not permitted there (he knew that were he to make the attempt he would very properly be interrupted by the President) to enter on a great question by formally attempting to reconcile the phenomena of geology to the language of the word of God. But he had no

fears as to the result of such an attempt, if soberly made, on right evidence and in the simple love of truth; nor did he doubt that the highest discoveries of science would ever be found in perfect harmony and accordance with the language and meaning of revelation.

"On the Excavations of the Rocky Channels of Rivers, by the recession of their Cataracts."—Mr. FEATHERSTONHAUGH drew attention to the manner in which extensive lacustrine and marecageous districts upon the continent of North America, have been drained and rendered fit habitations for man. During his researches in that part of the western hemisphere, he found evidences upon all the rivers whose valleys were bounded by lofty escarpments, that the gorge in which each river flowed had been cut out of the land by the recession of a cataract. The river Mississippi flowed in a valley of this character. From the Falls of St. Anthony to its mouth in the Gulf of Mexico, the distance was about 2,000 miles, during the first 1,200 of which these escarpments, varying from 200 to 450 feet in height, were everywhere found, divided from each other by a width varying from one to two and a half miles, the valley being during the greater part of this course thickly studded with well-wooded islands, amongst which the waters of the river flowed. Upon a level with the surface of these islands were extensive plains connected occasionally with lateral valleys coming through the escarpments, the soil of which was identically the same with that of the islands, being a light vegetable sandy soil much mixed up with decayed freshwater shells; showing that these soils were the old muddy bottom of the river, deposited when it occupied the whole breadth of the valley from escarpment to escarpment. These, and analogous appearances upon the courses of other American rivers, especially the immense lacustrine deposits separating Lake Erie from Lake Huron, seventy miles in breadth, were adduced as proofs of a great diminution of the quantity of fresh water once occupying the lakes, and the fluvial courses of that continent: indeed, from the difference of level between a point on the Wisconsin River and the channel of the upper Fox River, over which boats now pass in time of great floods, the water communication betwixt the Mississippi and Lake Erie seems to have been uninterrupted. This portion of the paper was intended to show, that the quantity of water in the rivers in ancient times so far exceeded the quantity flowing in them at present, that the cataracts in the rivers must have been much more powerful, and that therefore the process of excavation of the rocky channels of rivers by the recession of their cataracts, must have been then effected in much shorter periods of time than at present. From all these considerations, and from the known fact that the Falls of St. Anthony had not receded more than twenty yards in the last 100 years, the author drew the deduction that the whole valley of the Mississippi, from the Falls of St. Anthony to the point where the escarpments terminate, had been excavated by the recession of that cataract, and that the excavation had proceeded at a much more rapid pace than it does in our times. The author next proceeded to explain the peculiar mechanical power which streams employ in forming their channels by the operation of cataracts, and divided it into two methods, the *molar* or grinding process, most common in mountainous countries constituted of primary rocks, and the *subtracting* or undermining power exercised upon strata of a softer quality. To illustrate the first of these methods, Mr. Featherstonhaugh exhibited a beautiful pictorial view of a remarkable cataract in the Cherokee country, called Ovnay Kay Amsh, or White Water, which he visited in 1837, and which had not attracted the attention of any other traveller. This cataract was at a point several miles from the extreme edge of the mountain, and was upwards of 600 feet high, the water falling in various pitches and inclined planes from the top to the bottom. Wherever the water found a depression in the surface of the gneiss it lodged there, and on the first fortuitous pebble coming into the cavity the work of destruction would begin, the current incessantly whirling about the pebble, and grinding the sides of the rock until a *pot-hole* was formed. These were there in great numbers, some of them four feet in diameter,

and six feet deep. Where great numbers abounded, the parietes became at length weak, and, giving way, all the pot-holes would coalesce into one. This process being repeated in various portions of the rock, the cohesion of the mass became diminished; and at the season of periodical floods, huge masses, weighing forty tons and upwards, would be precipitated to the bottom. This was the state of the great fragments at the bottom of the ravine, all of them bearing evidence of having been dislocated by the power of the water exercised upon the pot-holes. Such was the method by which this gorge, several miles long and about 600 feet in depth had been ground out of this mountain of gneiss. At this locality were the evidences of the volume of the river having once been at least ten times larger than at present. A semi-circular ledge of gneiss, at the top, east of the stream, and 1,200 feet wide, was worn bare for a great distance, and down its perpendicular face was concave, as if the river had been projected over the top, and the screen of water in face of the concavity, and the concussion, and the moisture, had produced the usual effect, of peeling off the coats of the rock. It presented much such an appearance as the rock at the Horse-Shoe Fall at Niagara would do, if the water were to be so much diminished at that point as to abandon it, and to be projected only from the comparatively small fall of the Schloss, on the American side of the river. For the other example of the subtracting, or undermining power exercised in the recession of cataracts, the Falls of Niagara were taken, of which a flat view was given, together with a section of the rocks. Mr. Featherstonhaugh had published a paper, in 1831, explaining the recession of this cataract. It is well known that the river Niagara flows upon a bed of limestone from which it projects itself, and that this rock is supported by a strong bed of friable shale upwards of seventy feet thick. The moisture arising from the screen of water, the current of wind behind it, and the concussion, loosen and remove the shale, and the superincumbent limestone, losing its support, falls down. In this manner the cataract has receded at least six miles from the Queenston heights. Mr. Featherstonhaugh expressed an opinion that this operation of excavating long channels of rivers, as in the instance especially of the Mississippi, may be considered in the class of providential arrangements, since by it the lakes, swamps, and immense marceous surfaces become drained, and rendered salubrious and productive habitations for man. There were many other interesting points brought forward in this paper, of which we have only room for this abstract.

'On the Physical Character and Geology of Norfolk Island,' by Capt. Maconochie, R.N., K.H.—The group, of which Norfolk Island is the principal, is situated in lat. 29° 2' S., and 168° 2' E. long., 900 miles E.N.E. of Sydney, and 1,350 N.E. from Cape Pillar, in Van Diemen's Land. Norfolk and Philip Islands, the largest of the group, are about 6 miles distant from each other; about a dozen others, the Nepean and Bird Islands, are little more than dry rocks distributed about them. Norfolk Island is not quite 5 miles long, with a medium breadth of about 2½ miles; and its superficies is said to be 8,960 acres; its greatest elevation is the double summit of Mount Pitt, 1,050 feet high; its sea-front is high and precipitous, presenting cliffs 200 and 250 feet in height, and the small streams which occupy the ravines in winter, fall, in cascades 30 or 50 feet high, into the sea. Philip Island is about 1½ mile long, with an average breadth of ¾. Its most elevated point is probably two or three hundred feet less than that of Norfolk Island. It is everywhere precipitous, furrowed by deep channels, and densely wooded, though the timber is small and of little value. Both these islands are masses of porphyry, much decomposed on the surface; boulders of compact greenstone are abundant in both islands, especially in the fields and watercourses of Norfolk Island, where they are employed as building materials. They are also found imbedded in the porphyry at the greatest depths to which the rock has been penetrated by wells or exposed in ravines. Near the south-east extremity of Norfolk Island are extensive beds of sand and limestone resting on the porphyry; the limestone, which is the lowest formation, is from 12 to 20 feet thick, and occupies about 20 acres of com-

paratively flat land; in two places it has been fractured, and upheaved from an angle of 10° to absolute verticality. It is thin-bedded, the laminae being usually one to three inches thick, of fine quality, slightly mixed with sand, but yielding 90 per cent. of lime. The sandstone appears to be entirely a modern formation, lying upon and against the dislocated limestone; the bar and projecting rocks along the whole south-east front are composed of it, but it is nowhere above 6 feet thick; below it is found an unctuous black clay full of vegetable remains, especially the leaves and seeds of pines and other island trees. The sandstone is only compact on the coast, where it is still forming; it contains marine shells, and incrusts the boulders of greenstone on the coast. Being porous, and filled with saline particles, it forms a bad building stone, the houses built of it requiring to be rough-cast with lime. Opposite the settlement which is placed on these beds, and about 600 yards from the beach, Nepean Island rises to the height of 50 feet; it is about a quarter of a mile long, and of a horse-shoe shape, open to the east. The limestone of which this island is composed is used for the shafts of chimneys; its east and south-east beach is formed of sandstone. No water has been found in it, and its vegetation has, within the last few years, almost disappeared, owing to a colony of rabbits which, having destroyed everything edible, have now themselves perished. It is reported that in 1793 this island was only a boat's length distant from Norfolk Island, but that in 1797 two severe earthquake shocks were experienced, by the second of which the nearer point of the Nepean was submerged, and the channel altered to its present form. The rocks which pave the channel between these islands are almost all limestones, whilst elsewhere they are porphyritic. The Bird Islands are rocks of porphyry distributed along the north shore of Norfolk Island; they are of no economic value, and are tenanted only by sea-birds. [See Statistical Section, Monday.]

Mr. ELIAS HALL read a communication 'On the Midland Coalfield,' being the substance of a pamphlet in course of publication.

THURSDAY.

SECTION E.—MEDICAL SCIENCE.

President—J. C. PRICHARD, M.D.
 Vice-Presidents—W. P. ALIBON, M.D., H. S. BELCOMBE, M.D.,
 G. GOLDSIE, M.D., T. SIMPSON, M.D.
 Secretaries—Mr. I. ERICHSEN, R. S. SARGENT, M.D.
 Committee—H. BACCHETTI, D.M. et Chir. of Pisa, Drs. T. Hodgkin,
 J. Black, Forby, Stewart, T. Laycock, W. Bryan, Meurs,
 C. Williams, R. Hey, B. Dodsworth, J. Allen, W. D. Hubbard.

The first paper read was a Report on Asphyxia, by Mr. ERICHSEN.—The different theories previously held on the subject were examined, and tested by a series of experiments, and from an examination of all the results the following conclusions were drawn:—1st, That, although the persistence of the respiratory movements has some influence in maintaining the circulation through the lungs, yet that their arrest is not by any means the sole cause of the cessation of the circulation.—2nd, That a diminution in the force and frequency of the contractions of the heart, consequent upon the altered quality of the blood circulating through its muscular substance, is one of the principal causes of the cessation of the circulation in asphyxia, as is evident from the fact that when the force of the heart's contractions is maintained by a supply of arterial blood to its muscular substance, it is enabled to propel black blood through a collapsed lung.—3rd, That the obstruction which has been found to take place in the pulmonary and systematic circulation is due to the venous blood exciting the contractility of the minute divisions of the arteries and pulmonary veins by acting on their special sensibility.—4th, That the cause of the stoppage of the circulation in asphyxia is, therefore, threefold, depending, 1st, upon the arrest of the respiratory movements; 2nd, upon the weakening of the heart's action; and 3rd, upon the obstruction afforded to the blood by the refusal of the smaller divisions of the arterial system to receive venous blood. The author then adverted to the subject of the treatment of asphyxia. After reviewing the plans generally adopted, he stated as a fact, determined by a considerable number of experiments, that if artificial respiration be set up, even after the heart have entirely ceased to act, the left cavities of that organ

will fill themselves with arterial blood, the congested condition of the lungs be removed, and the pulmonary artery be emptied of its blood, and this without the action of the heart being renewed; unless when pure oxygen gas was used, when these effects took place with much greater rapidity; and the author succeeded in many instances in restoring the circulation after the contractions of the ventricles had ceased; he, therefore, recommended insufflation with this gas in extreme cases of asphyxia.

The SECRETARY read a paper by Dr. Heming, on a disease of the tongue. The author described the disease, the appearances of which, although varied in degree, were uniform in character. In the early symptoms the tongue is oedematous, sculcated, and prone to become ulcerated on the borders of the sulci, or in parts which may be irritated by the contact of a decayed or ragged tooth; the surface then becomes morbidly smooth in longitudinal streaks, the papillae being apparently obliterated; the whole organ assumes the same character, becoming dry and hard in its texture, the ulceration becomes more marked, is sometimes superficial, and in some cases forming deep ragged ulcers; in one case the ulcers had pierced entirely through the organ. The author detailed five well-marked cases; they all occurred in females, and the general constitutional health was much impaired, the patients suffering from sick head-aches, deranged digestion, oedematous ancles, &c.; in some cases the disease was of many years continuance. In the treatment, the author deems the restoration of the general health of primary importance: after the ordinary aperients, he gave soda and cicuta, and continued these remedies many weeks. The local application found most useful was nitrate of silver; by perseverance in the treatment every case got well.

EVENING MEETING—THURSDAY.

The EARL OF ROSSE, on taking the chair, directed attention to the provision made for the continuance of the business of the Association by means of the Council, in the intervals between the annual meetings. This arrangement rendered it necessary that he should be present to resign his seat to his successor, and it delighted him to witness a meeting of the Association under such auspicious circumstances. After an interval of thirteen years their body was revisiting its birth-place, having achieved many great triumphs, and having still greater in progress; all their exertions had been directed to the intellectual improvement of mankind; and the increase of interest in their proceedings, manifested by the increase of numbers, was at once evidence that these efforts had been successful, and had been appreciated by their countrymen. It was gratifying to designate as his successor in the chair one of the first of living mathematicians, and one not less estimable for his moral qualities than admirable for his scientific attainments. His contributions had enriched their Reports, as his presence had given interest to their meetings. His Lordship then dwelt at some length on the value of mathematics; it was the foundation of all the certain sciences, and it kept them all in their just proportions. Mathematics formed an engine of enormous power, which conferred upon us the control over the dominions of time, space, and number. They taught us the laws that regulate the order and secure the permanence of the universe; but while thus sublime in its applications, it could accommodate itself to our humblest wants. Were mathematical science to be lost, the misfortune would be felt through the whole wide range of commerce and manufactures, and through all the relations of life. The sailor would no longer be able to find his way over the pathless ocean; the merchant could not collect the varied products of nature, as he would have no means of transport; and all engineering would become mere guesswork. Even in our remote agricultural districts the loss would be felt, for the surveyor would be wanting to arrange the boundaries of property; indeed, so pervading and necessary was that knowledge, that without it even the commonest engagements and relations in the intercourse of society could not be carried on; and he adverted to the still greater advantages which must flow from a more extensive application of its principles. He looked upon the present meeting as the first of a new cycle; and

as the objects of the Association were permanent in nature, all interested in the advancement of science must be rejoiced to see such signal indications of the permanence of the Association's prosperity. The history of all science showed that minute facts were first observed, and elementary principles first established; but its progress was from strength to strength, and the advancement was accelerated by co-operation and the sympathetic activity of all intelligent men. This augmentation brought a rich reward; for every page added to the great record of knowledge, and registered for mankind one of the eternal laws which the wise Creator had framed for the government of the Universe.

The Earl of Rosse then resigned the chair to the Dean of Ely.

The President's Address.

The noble Lord, to whose office I succeed, and who has introduced me to your notice, has spoken of me in terms, which, however flattering to my pride, I can only accept as the expression of his friendship and good will; and I hope he will permit me to add, that whilst there are few persons for whose character and attainments I feel a more sincere respect, there is none whose favourable opinion I should be more anxious to merit. The members of the Association who were present at the meeting at Cork can bear witness to the courteous, dignified, and able manner in which he discharged the duties of his office, whilst others, who, like myself, had the opportunity of seeing them, could not fail to be deeply impressed with the magnificent works which are accomplished or in progress at his noble residence at Birr Castle. Whatever met the eye was upon a gigantic scale; telescopic tubes through which the tallest man could walk upright; telescopic mirrors, whose weights are estimated not by pounds but by tons, polished by steam power with almost inconceivable ease and rapidity, and with a certainty, and accuracy, and delicacy, exceeding the most perfect productions of the most perfect manipulation; structures, for the support of the telescope and its machinery, more lofty and massive than those of a Norman keep; whilst the same arrangements which secure the stability of masses which no ordinary crane could move, provide likewise for their obeying the most delicate impulse of the most delicate finger, or for following the stars in their course, through the agency of clockwork, with a movement so steady and free from tremors, as to become scarcely perceptible when increased a thousand fold by the magnifying powers of the eyeglass. The instruments, which were mounted and in operation at the time of my visit, exceeded in optical power, and in the clearness and precision of their definition of celestial objects, the most perfect productions of the greatest modern artists; and though much had been then accomplished, and great difficulties had been overcome, by a rare combination of mechanical, chemical, and mathematical skill and knowledge, in the preparation for mounting the great telescope of six feet diameter and fifty-four feet focal length, yet much remained to be done: but I am quite sure that the members of the Association will learn with unmixed satisfaction, that the noble Lord has entirely succeeded in his great undertaking—that the great telescope has already made its essay, and that its performance is in every way satisfactory, and that he proposes to communicate to the Mathematical and Physical Section in the course of the present meeting, an account of the process which he has followed in the preparation and polishing of his mirrors, and of the expedients which he has adopted for bringing under the most perfect control the movement of the vast masses with which he has had to deal.

It is now more than sixty years since the elder Herschel, by the superior optical and space-penetrating powers of his telescope, began a brilliant career of astronomical discovery; and the interest which the construction of his great forty-foot reflector, a memorable monument of his perseverance, genius and skill, excited amongst men of science of that period, was not, if possible, less intense than what now attaches to the similar enterprise of the noble Lord: nor were the expectations which were thus raised disappointed by the result; for though this noble instrument was generally reserved for the great and state occasions of astronomy only, requiring too great an expenditure of time and labour to be producible

for the daily business of observation, yet the very first time it was directed to the heavens it discovered the 7th satellite of Saturn, and contributed in no considerable degree to the more complete development of those views of the construction of the heavens (I use his own expression) which his contemporaries never sufficiently appreciated, but which present and future ages will probably regard as the most durable monument of his fame. It is no derogation to the claims of this great discoverer that art and knowledge are progressive, or that a successor should have arisen, who, following in the track which he has pointed out, should bring a considerable zeal and more ample means to prepare the way for another great epoch in the history of astronomical discovery; and I know that I do not misstate the sentiments of the accomplished philosopher who has succeeded to his name and honours, and who throughout his life has laboured with such exemplary filial piety, and such distinguished success, in the development and extension of his father's views, that no one takes a deeper or a more lively interest in the success of this noble enterprise, and no one rejoices more sincerely in the vast prospects of discovery which it opens.

Gentlemen, it is now thirteen years since the British Association held its first meeting in this ancient and venerable city, under the presidency of the noble Earl, who is always the first to offer his services in the promotion of the interests of science, and of every good and useful undertaking; it was in this city that its constitution and laws were first organized, and it is by these laws, for which we are chiefly indebted to the excellent sense and judgment of Mr. William Vernon Harcourt, with very unimportant changes, the Association has continued to be governed. It is in conformity with the spirit of these laws, that we should seek to co-operate, and not to interfere with other Societies which have pursuits and objects in common with our own; that we should claim no right to the publication of memoirs which are read at our Sections, and which are not prepared at our request; that we should endeavour to concentrate and direct the influence of the public opinion of men engaged or interested in the pursuits of science, in favour of such objects, and such objects only, as they agree in considering important for its interests; and above all, that we should avail ourselves of the advantages which we possess in the extensive range of our operations, and in our independence of particular societies and particular localities, of organizing and carrying into effect well-digested systems of co-operative labour.

Again, our meetings were also designed to bring men who are engaged in common pursuits, and interested in common objects, into closer union and more frequent intercourse with each other; to encourage the more humble and less generally known cultivators of science, by bringing their labours under the notice of those men who are best able to appreciate and to give currency to their value; to enable our members to see, in the places which they visited, where all establishments are, with rare exceptions, most liberally thrown open to their inspection, whatever is most remarkable in the production of their manufactures, in the principles and construction of their machinery, in their collections connected with art or the natural sciences, in their public establishments for charity or education, in the moral or physical condition of their inhabitants, or whatever other objects their neighbourhood presents, which may interest the antiquary, the geologist, or the lover of picturesque scenery;—we may venture to add, likewise, that they were designed for purposes of social as well as of philosophical recreation, a consideration of no small importance with men whose occupations are frequently monotonous and laborious, and such as require the occasional stimulus of change and variety.

In accordance with these views, we have visited in their turn the most remarkable localities of the three kingdoms, including the universities of England, Scotland, and Ireland, the great seats of our manufacturing industry, the great marts of our commerce. It is not necessary for me to speak of the success which has marked our progress. The numbers who have attended our meetings have been always large, and sometimes so great as to embarrass our proceedings, from the difficulty of finding adequate rooms to receive them. The communications which have come under the notice of our several Sections, have continued to

increase in importance and interest, more particularly since the great co-operative inquiries of our body have come into full operation. We have been enabled, by the application of our funds, to complete some, and to forward many, scientific enterprises, of the highest importance and value; and I see no reason to apprehend that the future meetings of the British Association will not continue to advance in scientific interest, or will cease to exercise a most powerful influence in originating and promoting scientific labours which will equally tend to promote the interests of knowledge and the honour of the empire.

The founders of the British Association justly conceived, that men of different shades of political opinion or religious belief would rejoice in the opportunities which such meetings would afford them of coming together, as it were, upon neutral ground, where their natural warfare would, for a season at least, be suspended, and no sounds be heard but those of peace. They felt persuaded that the softening influence of mutual intercourse would tend to soothe the bitterness of party strife, and would expose to view points of contact and union, even between those whom circumstances had most violently estranged from each other, and show them that the features of the monsters of their apprehension were not so repulsive as their imaginations or intolerance had drawn them. I know that there are some zealots who are ready to denounce the interchange of the commonest charities of life with those whose opinions, however honestly and conscientiously formed, they believe to be unfounded or dangerous; but there is a wide and fundamental distinction between the condemnation of opinions and of the persons who hold them; and though I should be far from advocating that spurious and false liberality which should assume, that in the selection of friends, or even in the ordinary intercourse of society, there should be a total suppression of all that is distinctive, both of profession and of opinion, yet there are numberless occasions on which we can neither notice them nor know of their existence, without the violation of all those rules of courtesy and good-breeding, which the most scrupulous regard for the integrity of our Christian profession and for the best interests of mankind would equally teach us to practise and to respect.

It was with a view of securing this neutral ground as the exclusive basis of their operations, that the founders of the Association cautiously guarded against any extension of its boundaries which might tend to admit new claimants to its occupation. They did not attempt to define the precise limits at which accurate science terminates and speculation begins, but they endeavoured to keep sufficiently within them to prevent the intrusion of discussions which might disturb the peace of our body or even endanger its existence; experience has fully established the wisdom of this law, and the absolute necessity of a rigid adherence to its provisions.

In returning to the scene of our first labours, the place of our nativity, but not of our childhood, it becomes us, as grateful children, to acknowledge our filial obligations to our founders. A reference to the list of these presents, as might be expected, after a lapse of thirteen years, some very distinguished names, who have been lost to science. In their number we find the name of Mr. W. Smith, who first received at our meetings the ample recognition of the value of those original and unaided researches, which entitle him to be considered as the father of English Geology; of Dr. Lloyd, Provost of Trinity College, Dublin, the father of our excellent colleague Prof. Lloyd, and the founder of that truly illustrious school of accurate science in that university, which has given to the world a Robinson, a Hamilton, and a McCulloch; of Sir J. Robinson, who inherited from his father, the well-known Prof. Robinson, his taste for science and its application to the arts; of Dr. Henry, one of our most distinguished chemists, and only second in reputation to his fellow townsman, Dr. Dalton, whose very recent loss we have occasion to deplore, and whose name, under such circumstances, it would be unbecoming to mention in merely a passing notice.

Dr. Dalton was one of that vigorous race of Cumberland yeomen amongst whom are sometimes found the most simple and primitive habits and manners combined with no inconsiderable literary or scientific attainments. From teaching a school as a boy in

his native village of Eaglesfield, near Cockermouth, we find him at a subsequent period similarly engaged at Kendal, where he had the society and assistance of Gough, the blind philosopher and a man of very remarkable powers, and of other persons of congenial tastes with his own. In 1793, when in his 23rd year, he became Professor of Mathematics and Natural Philosophy in the New College in Mosley Street, Manchester, a situation which he continued to hold for a period of six years, and until the establishment was removed to this city, when he became a private teacher of the same subjects, occupying for the purposes of study and instruction the lower rooms of the Literary and Philosophical Society in George Street, rarely quitting the scene of his tranquil and unambitious labours, beyond an annual visit to his native mountains, with a joint view to health and meteorological observations. He made his first appearance as an author in a volume of 'Meteorological Observations and Essays,' which he published in 1793, and which contains the germ of many of his subsequent speculations and discoveries; and his first views of the Atomic Theory, which must for ever render his name memorable as one of the great founders of chemical philosophy, were suggested to him during his examination of elefant gas and carburetted hydrogen gas. His theory was noticed in lectures which he delivered at Manchester in 1803 and 1804, and much more explicitly in lectures delivered at Edinburgh and Glasgow; it was, however, first made generally known to the world in Dr. Thomson's Chemistry in 1807, and was briefly noticed in his own system of chemistry which appeared in the following year; and though his claims to this great generalization were subject to some disputes both at home and abroad, yet in a very short time both the doctrine and its author were acknowledged and recognized by Wollaston, Davy, Berzelius, and all the great chemists in Europe. But the atomic theory is not the only great contribution to chemical science which we owe to Dalton; he discovered contemporaneously with Gay-Lussac, with whom many of his researches run parallel, the important general law of the expansion of gases—that for equal increments of temperature, all gases expand by the same portion of their bulk, being about three-eighths in proceeding from the temperatures of freezing and boiling water. His contributions to meteorology were also of the most important kind. Dr. Dalton was not a man of what are commonly called brilliant talents, but of a singularly clear understanding and plain practical good sense; his approaches to the formation of his theories were slow and deliberate, where every step of his induction was made the object of long-continued and persevering thought; but his convictions were based upon the true principles of inductive philosophy, and when once formed, were boldly advanced and steadily maintained. It is always unsafe, and perhaps unwise, to speculate upon the amount of good fortune which is connected with the time and circumstances of any great discovery, with some view to detract from the credit of its author; and it has been contended that Wollaston, Berzelius and others, were already in the track which would naturally lead to this great generalization; but it has been frequently and justly remarked, that if philosophy be a lottery, those only who play well are ever observed to draw its prizes.

"Though Dalton's great discovery," says the historian of the Inductive Sciences, "was soon generally employed, and universally spoken of with admiration, it did not bring to him anything but barren praise, and he continued in his humble employment when his fame had filled Europe, and his name became a household word in the laboratory. After some years he was appointed a corresponding member of the Institute of France, which may be considered as a European recognition of the importance of what he had done; and in 1826, two medals for the encouragement of science having been placed at the disposal of the Royal Society by the King, one of them was assigned to Dalton, 'for his development of the atomic theory.' In 1833, at the meeting of the British Association for the advancement of Science, which was held at Cambridge, it was announced that the King had bestowed upon him a pension of 150*l.*; at the preceding meeting at Oxford, that University had conferred the degree of Doctor

of Laws, a step the more remarkable since he was not of the sect of Quakers. At all the meetings of the British Association he has been present, and has always been surrounded with the reverence and admiration of all who feel any sympathy with the progress of science. May he long remain among us, thus to remind us of the vast advance which chemistry owes to him." This was written in 1837, the year in which a severe attack of paralysis seriously impaired his powers; he last appeared among us at Manchester, when he received the respectful homage of the distinguished foreigners and others who were there assembled; he died on the 27th of July last, in the 78th year of his age. His funeral, which was public, was attended by all classes of the inhabitants who felt justly proud of being the fellow-citizens of so distinguished a man.

I now proceed to notice some other topics which are connected with the distribution of the funds, and the general conduct of the affairs of the Association. Like other bodies, we have had our periods of financial prosperity and decline; and like other bodies, we have sometimes drawn more freely upon our resources, than their permanent prospects would justify. The statement which will be read to you by our excellent treasurer, (see *ante*, p. 882) will show, that during the last year our capital has been reduced: the great number of life subscribers, which at one time rapidly augmented our resources, has a natural and necessary tendency to reduce our annual subscriptions, at every succeeding meeting; and some alterations in the conditions of admission for those inhabitants of the places where we are received, who are not likely to follow the farther movements of the Association, have not tended to swell our receipts, though rendered, at the time, necessary by the great numbers who crowded inconveniently some of our sectional meetings.

I regret to find that some currency has been given to the notion,—which I believe to be altogether erroneous and unfounded,—that a large excess of income above our necessary expenditure, which may be devoted to the promotion of scientific researches and scientific objects, is essential to the successful working of the business of the Association, and that our movements should therefore be always directed to those places, where our coffers are most likely to be filled. It may be quite true, that the objects of the Association are most certainly and effectually promoted by going to those places which are likely to attract the largest concourse of scientific visitors, and that our finances thus become immediately dependent upon our general prosperity; but if, under any circumstances, these two principles of selection should ever come into collision with each other, there can be no doubt to which of them our preference should be given; and though I think we should very imperfectly accomplish the design of our institution, if our tour of visits did not comprehend, in their turn, every important district in the three kingdoms, yet it would be not only unadvisable, but dangerous even to our very existence, if we fixed our standard in any locality which did not present a reasonable prospect of procuring the requisite scientific supplies, and of not sustaining the union, as well as vigorous action of the body to which we belong.

There are some great principles which have generally governed the Committee of Recommendations, in recommending, and the General Committee in confirming grants of money for scientific objects, which I hope we shall never lose sight of: that no part of our funds should ever be applied to defray the personal expenses, or to compensate the loss of time or labour of any of our members, in making researches or experiments, even when they are undertaken or made at the request of the Association: that they should not be granted for the general promotion of this or that branch of science, but for specific and well-defined objects: that in no case should they be applied to make a bookselling or other speculation remunerative, which would otherwise not be so: that the results of inquiries which are carried on, partly or wholly at our charge, should so far belong to the Association, as to secure its just claim to the scientific credit, which they are calculated to confer. I know that some of these principles have been, in some instances, partially departed from, under very pressing and peculiar circumstances; but the remembrance of the discussions to which some claims of this nature

have given rise, which it was improper to grant, but difficult and painful to refuse, has tended to confirm my own impression, not merely of the wisdom of these important rules, but likewise the almost imperative necessity of adhering to them.

It was at the memorable meeting of the Association at Newcastle, a period of great financial prosperity, that it was resolved to recommend and to undertake a very extensive system of astronomical reductions and catalogues: the first was the republication, under a greatly extended and much more complete form, of the Astronomical Society's catalogue, exhibiting the latest and most accurate results of astronomical observation, reduced to a common epoch, with the permanent co-efficients for their reduction, which the Nautical Almanac does not supply. The second was the reduction of all the stars in the *Histoire Céleste* of Lalande, nearly 47,000 in number, containing the most complete record which existed 60 years ago of the results of observation, and affording, therefore, an interval of time so considerable, as to enable astronomers, by comparing them with their positions as assigned by modern observations, to determine their proper motions and other minute changes, almost independently of the errors of observation: a third, was a similar reduction of stars in the *Cælum Stellarum Australe*, of Lacaille, 8700 in number, which had assumed an unusual degree of importance from the recently completed survey of the southern hemisphere by Sir John Herschel, and the establishment of observatories at Parramatta and the Cape.

Another work of still greater expense and labour, was the reduction and publication of the Planetary and Lunar Observations at Greenwich, from the time of Bradley downwards, which was undertaken by the Government at the earnest application of a committee of the Association appointed for that purpose, and acting in conjunction with the Royal Society. This great undertaking has been nearly brought to a conclusion under the systematic and vigilant superintendence of the Astronomer-Royal.

The publication of these works must form a great epoch in astronomy; and though the expense to which it has exposed the Association has been very considerable, and will amount, when completed, to nearly 3000*l.*, yet it cannot fail to prove a durable monument of the salutary influence which it has exercised upon the progress of science. The catalogues of Lacaille and Lalande are to be printed and published, as is already known to you, at the expense of Her Majesty's Government; and the first, which has been prepared under the superintendence of Prof. Henderson, is nearly complete. The catalogue of Lalande and the British Association catalogue, were placed under the superintendence of Mr. Francis Baily; and in referring to the irreparable loss, which astronomical science has so recently sustained by his death, I should neither do justice to my own feelings nor to yours, if I did not detain you for a few moments.

Mr. Baily was, undoubtedly, one of the most remarkable men of his time. It was only in 1825, that he retired from the Stock Exchange, with an ample fortune, and with a high character for integrity and liberality; but his subsequent career almost entirely belongs to astronomy, and is one of almost unexampled activity and usefulness. The Astronomical Society was organized by him, and throughout life he was the most considerable contributor to its Memoirs. The catalogue of the Astronomical Society, the funds for which were contributed by several of its members, was entirely formed under his superintendence, and we are chiefly indebted to his exertions for the more ample development which the Nautical Almanac has lately received, and which has added so much to its usefulness. There was no experimental research connected with the more accurate determinations of astronomy or physical science, which was not generally intrusted to his care: the publication of the Pendulum Observations of Capt. Foster, which were confided to him by the Admiralty, gave occasion to the most complete series of pendulum experiments which had ever been made, in which many most important defects of those instruments were first brought to light: he undertook the repetition of the celebrated experiment of Mr. Cavendish, and his discussion of the whole question, which forms a recent volume of 'The Memoirs of the Astronomical Society,' is a monu-

ment not less honourable to his patience, perseverance, and skill, than to the sagacity and accuracy of the great philosopher who first devised it. He had also undertaken, for the Commission of Weights and Measures, the conduct of the process for forming the new standard yard from the scale of the Astronomical Society, which he had himself compared with the imperial standard yard, destroyed in the burning of the Houses of Parliament. He published, at the request of the Admiralty, the correspondence and catalogue of Flamsteed; he presented to the Astronomical Society, a volume containing the catalogues of Ptolemy, Ulugh Beigh, Tycho Brahe, Hevelius and Halley, with learned prefaces and critical notes, showing their relations to each other and to later catalogues. His preface and introduction to the British Association Catalogue, and more than one-third of the catalogue itself are printed; and from the critical examination of the authorities, upon which his assumed positions rest, and from the careful distribution of the stars which are selected (more than 8000 in number) in those parts of the heavens where they are likely to be most useful to observers as points of comparison, it promises to be the most important contribution to the cause of practical astronomy, which has been made in later times. The whole of the stars of the *Histoire Céleste* are reduced, and a considerable portion (more than one-fifth) printed, but it is not known whether the introductory matter which, from him, would have been so important, was prepared at the time of his death. Mr. Baily was the author of the best Treatise on Life Annuities and Insurances which has yet appeared, as well as of several other publications on the same subject. His knowledge of the mathematics of the English school was very sound and complete, though he had never mastered the more refined resources of modern analysis. In the discussion of the Cavendish and other experiments, he freely availed himself of the assistance of the Astronomer Royal and Mr. De Morgan, in the investigation of formulae which were above his reach; but he always applied them in a manner which showed that he thoroughly understood their principle, and was fully able to incorporate them with his own researches. In the midst of these various labours, (and the list, which I have given of them, ample as it is, comprehends but a small part of their number), Mr. Baily never seemed to be particularly busy or occupied: he entered freely into society, entertaining his scientific as well as mercantile friends at his own house with great hospitality. He was rarely absent from the numerous scientific meetings of committees and councils—he was a member of all of them,—which absorb so large a portion of the disposable leisure of men of science in London: but if a work or inquiry was referred to him, it was generally completed in a time which would seem hardly sufficient for other men to make the preliminary investigation. Most of this was undoubtedly owing to his admirable habits of system and order: to his always doing one thing at one time: to his clear and precise estimate of the extent of his own powers. Though he always wrote clearly and well, he never wrote ambitiously: and though he almost always accomplished what he undertook, he never affected to execute, or to appear to execute, what was beyond his powers. This was the true secret of his great success, and of his wonderful fertility; and it would be difficult to refer to a more instructive example of what may be effected by practical good sense, systematic order, and steady perseverance.

It was the same meeting at Newcastle which gave rise to the design for the greatest combined scientific operation in which the Association has ever been engaged for the extension of our knowledge of the laws of magnetism and meteorology.

It was the publication of Col. Sabine's Report on the variations of the magnetic intensity at different points of the earth's surface, and the map which accompanied it, which appeared in our volume for 1837, which first enabled the celebrated Gauss to assign provisionally the co-efficients of his series for expressing the magnetic elements: the proper data of this theory are the values of the magnetic elements at given points uniformly and systematically distributed over the surface of the earth; and it was for the purpose of supplying the acknowledged deficiency of these data, and of determining the laws which regulated the movements of this most subtle and mysterious

element, the Association was induced to appoint a committee to apply, in conjunction with the Royal Society, to her Majesty's Government, to make a magnetical survey of the highest accessible altitudes of the Antarctic seas, and to institute fixed magnetical and meteorological observatories at St. Helena, the Cape, Hobarton, and Toronto, in conjunction with a normal establishment at Greenwich, and in connexion with a great number of others on the continent of Europe; where systematic and simultaneous observations could be made which would embrace not only the phenomena of magnetism, but those of meteorology also: it is not necessary to add that the application was promptly acceded to. The views and labours of the framers of this magnificent scientific operation; the brilliant prospects of discovery which it opened; the noble spirit of co-operation which it evoked in every part of the civilized world, were alluded to in terms so eloquent and so just, in the opening address of Mr. W. Vernon Harcourt, when occupying this chair at Birmingham [see *Athen.* No. 618], that I should do little justice to them if I employed any terms but his own, and I must content myself with simply referring to them. Much of what was then anticipated, has been accomplished, much is in progress, and much remains to be done; but the results which have already been obtained have more than justified our most sanguine expectations.

Sir James Ross has returned without the loss of a man, without a seaman on the sick list, after passing three summers in the Antarctic seas, and after making a series of geographical discoveries of the most interesting and important nature, and proving, in the language of the address to which I have just referred, that for a man, whose mind embraces the high views of the philosopher with the intrepidity of the sailor, no danger, no difficulty, no inconvenience could damp his ardour or arrest his progress, even in those regions where

Stern famine guards the solitary coast,
And winter barricades the realms of frost.

The scientific results of the first two years of this remarkable voyage have been discussed and published by Col. Sabine in his contributions to *Terrestrial Magnetism* in the *Transactions of the Royal Society*; and they are neither few nor unimportant. They have shown that observations of declination, dip, and intensity, the three magnetic elements, may be made at sea with as much accuracy as on land, and that they present fewer anomalies from local and disturbing causes: that the effects of the ship's iron are entirely due to induced magnetism, including two species of it,—one instantaneous, coincident with and superadded to the earth's magnetism, and the other a polarity retained for a shorter or longer period, and transferable therefore during its operation by the ship's motion from one point of space to another: that in both cases they may be completely eliminated by the observations and formulæ which mathematicians have proposed for that purpose: no intensity greater than 2-1 was observed; and the magnetic lines of equal declination, dip, and intensity, were found to differ greatly from those laid down in Gauss's Theoretical Map, the northern and southern hemispheres possessing much greater resemblance to each other than was indicated by that primary and necessarily imperfect essay of the theory.

The range of Sir James Ross's observations extends over more than three-fourths of the navigable parts of the southern seas; and you will learn with pleasure that one of his most efficient officers, Lieut. Moore, has been dispatched from the Cape, with a vessel under his command, to complete the remainder.

Nothing could exhibit in a more striking light the completeness of the organization and discipline of the system of magnetic observations, than the observations of the great magnetic storm on the 25th of September 1841: it was an event for which no preparation could be made, and which no existing theory could predict; yet so vigilant and unremitting was the watch which was kept, that we find it observed through nearly its whole extent, and its leading circumstances recorded, at Greenwich, and in many of the observatories on the continent of Europe, at Toronto, St. Helena, the Cape, Hobarton, and at Trevandrum in Travancore; for even the mediæval princes of the East have established observatories, as not an unbecoming appendage to the splendour of their courts. Some of the observations of this re-

markable phenomenon, and of many others (twenty-seven in number) of a similar nature, have been discussed, with great care and detail, by Col. Sabine, and lead to very remarkable conclusions. They are not absolutely simultaneous at distant stations, nor do they present even the same succession of phases, as at first anticipated; and it is the disturbances of the higher order only which can be considered as universal. They are modified by season as well as by place, the influence of winter, in one hemisphere, and of summer in the other, on the same storm, being clearly distinguishable from each other. The simultaneous movements in Europe and America have been observed to take place sometimes in opposite, and sometimes in the same directions, as if the disturbing cause was in one case situated between these continents, and in the other not; and we may reasonably expect, when our observatories are furnished with magnetometers of sufficient sensibility to indicate instantaneously the effects of disturbing causes, that the localities in which they originate may be determined: these are very remarkable conclusions, and well calculated to show the advantages of combined observations; for such inquiries, observations in a single and independent locality, however carefully they may be made, are absolutely valueless.

The meteorological observations are made, in all these observatories, on the same system, and with equal care with those of magnetism; they embrace the mean quantities, diurnal and annual variations of the temperature, pressure of the atmosphere, tension of the aqueous vapour, the direction and force of the wind, with every extraordinary departure from the normal condition of these elements, as well as auroral and other phenomena. It would be premature to speak of the conclusions which are likely to be deduced from these observations, inasmuch as the reduction and comparison of them have hitherto made little progress, but they cannot fail to be highly important; for it is by the comparison of observations such as these, made with reference to a definite system, with instruments constructed upon a common principle, and carefully compared with each other, and by such means alone, that the science of meteorology can be not only advanced but founded. Our philosophical records have for the last century been deluged with meteorological observations; but they have been made with instruments adapted to no common principle, compared with no common standard, having reference to no station but their own, and even, with respect to it, possessing no sufficient continuity and system; they have been for the most part desultory, independent and consequently worthless. It would be unjust to the merits of one of the most assiduous and useful of our members, Mr. Snow Harris, if I did not call your attention, in connexion with this subject, to his Reports, included in the reports of our twelfth meeting, [*Athen.* No. 769, see also No. 827,] on the meteorological observations at Plymouth made by him or under his superintendence, with the aid of a very moderate expenditure of the funds of the Association. They comprehend observations of the thermometer, at every hour of the day and night, during ten years, and of the barometer and anemometer, during five years, carefully reduced and tabulated, and their mean results *cynographed* or projected in curves. Nothing can exceed the clearness with which the march of the diurnal changes is exhibited in these results; and I sincerely hope that means may be found for printing them in such a form as may secure to them their permanent authority and value.

Another discussion of the meteorological observations made at sixty-nine stations at the equinoxes and solstices in the years 1835, 1836, 1837, and 1838, which have been reduced, and *cynographed* with great care and delicacy by Mr. Birt, at the expense of the Association, forms the subject of a Report by Sir J. Herschel, [*Athen.* No. 828,] in the volume of our Reports for the present year, and may be considered as a prelude, on a small scale, of the species of analysis which the results of the great system of observations now in progress should hereafter undergo. The inferences which are drawn from the examination of the changes of atmospheric pressure, with more especial reference to the European group of stations only, are in the highest degree instructive and valuable.

The system of magnetic observatories was at first designed to continue for three years only, but was subsequently extended to the 1st of January 1846: for it was found that the first triennial period had almost elapsed before the instruments were prepared, or the observers instructed in their duties, or conveyed to their stations. The extent also of co-operation increased beyond all previous expectation: six observatories were established, under the zealous direction of M. Kupffer, in different parts of the vast empire of Russia,—the only country, let me add, which has established a permanent physical observatory. The American government instituted three others at Boston, Philadelphia, and Washington; two were established by the East India Company at Simla and Singapore; from every part of Europe, and even from Algiers, offers of co-operation were made. But will the work, which has thus been undertaken with such vast prospects, be accomplished before the termination of the second triennial period? or is it not probable that the very discussion of the observations will suggest new topics of inquiry, or more delicate methods of observation? If the march of the diurnal, monthly, and annual movements of the needle be sufficiently determined, will its secular movements be equally well known? In other words, shall we have laid the foundations of the theory, which may even imperfectly approximate to the theory of gravitation, in the accuracy and universality of its predictions? It is with reference to these important questions, and the expediency of continuing the observations for another triennial term, that M. Kupffer, too, addressed a letter to Col. Sabine, suggesting the propriety of summoning a Magnetic Congress, to be held at the next meeting of the British Association, and at which himself, Gauss, Humboldt, Plana, Hansteen, Arago, Lamont, Kairill, Bache, Quetelet, and all other persons who had taken a leading part in conducting, organizing, or forwarding these observations, should be invited to attend. This proposal has been for some time under the anxious consideration of your Committee of Magnetism, consisting of Sir J. Herschel, Col. Sabine, the Astronomer Royal, Dr. Lloyd, the Master of Trinity College, and myself; and it will be for the General Committee, before we separate, to decide upon the answer which must be given. I think I may venture to say, that there would be but one feeling of pride and satisfaction, at seeing amongst us the whole or any considerable number of these celebrated men; and there can be little doubt but that, whatever be the place at which you may agree to hold your next meeting, they will experience a reception befitting the dignity of these great representatives of the scientific world.

It is quite true, that the preparations for such a meeting would impose upon your Committee of Magnetism, and more especially upon Col. Sabine, no small degree of labour. Reports must be received from all the stations, up to the latest period, of the state of the observations; their most prominent results must be analyzed and compared, and communicated as extensively as possible amongst the different members of the congress, so as to put them in possession of the facts upon which their decision should be founded. Great as is our reliance upon the activity and zeal of Col. Sabine, and of his admirable co-adjutor Lieut. Riddell, perfect as is his acquaintance with every step of an inquiry, with the organization and conduct of which he and Prof. Lloyd have had the principal share, I fear that he would require greater means than his present establishment could furnish, to meet the pressure of such overwhelming duties.

If it should be the opinion of such a congress that it was expedient to continue the observations for another triennial period, and if such an opinion were accompanied by an exposition of the grounds upon which it was founded, there can be little doubt that there is not a government in the civilized world which would not readily acquiesce in a recommendation which was supported by such authority.

The last volume of our Transactions is rich in Reports on Natural Science, and more especially in those departments of it which have an important bearing on Geology: such is Prof. Forbes's Report 'On the distribution of the Mollusca and Radiata of the *Ægean Sea*,' [Athen. No. 830] with particular reference to the successive zones of depth which are char-

acterized by distinctive forms of animal life and the relation between existing and extinct species. You will, I am sure, be rejoiced to hear that Her Majesty's Government has not only secured the services of its author, in connexion with the geological survey, but has most liberally undertaken, upon the application of the Council, to defray the expense of printing the very interesting work upon which this Report is founded. The Report of Mr. Thompson, of Belfast, on an analogous branch of the Fauna of Ireland, is remarkable for the minuteness and fulness of the information which it conveys. Prof. Owen has continued his Report on the British Fossil Mammalia, which was begun in the preceding volume, and towards procuring materials for which a contribution was made from the funds of the Association. I regret to find that a class of Reports on the recent progress and existing state of different branches of science, which occupied so large a portion of our earlier volumes, and which conferred upon them so great a value, have been almost entirely discontinued: if the authors of these Reports could find leisure to add to them an appendix, containing the history of the advances made in those branches of science during the last decade of years, they would confer an important benefit on all persons engaged in scientific inquiries.

The history of the sciences must ever require these periodical revisions of their state and progress, if men continue to press forward in the true spirit of philosophy to advance the boundaries of knowledge; for though there may be impassable boundaries of human knowledge, there is only one great and all-wise Being, with whom all knowledge is perfect, who can say, "Thus far shalt thou go, and no farther." The indolent speculator on the history of the sciences may indulge in an expression of regret that the true system of the universe is known, that the law of gravitation is discovered, that the problem of the three bodies is solved, and that the rich mine of discovery is exhausted, and that there remain no rich masses of ore in its veins to make the fortune and fame of those who find them: but it is in the midst of this dream of hopelessness and despondency that he is startled from time to time by the report of some great discovery—a Davy has decomposed the alkalis; a Dalton has discovered, and a Berzelius has completely developed the law of definite proportions; a Herschel has extended the law of gravitation to the remotest discoverable bodies of the universe; and a Gauss has brought the complicated and embarrassing phenomena of terrestrial magnetism under the dominion of analysis; and so it will ever continue to be whilst knowledge advances, the highest generalizations of one age becoming the elementary truths of the next. But whilst we are taking part in this great march of science and civilization, whilst we are endeavouring to augment the great mass of intellectual wealth which is accumulating around us, splendid as may be the triumphs of science or art which we are achieving, let us never presume to think that we are either exhausting the riches or approaching the terms of those treasures which are behind. Still less let us imagine that the feeble efforts of our philosophy will ever tend to modify the most trivial and insignificant—if aught can be termed trivial and insignificant, which He has sanctioned—of those arrangements which the great Author of Nature has appointed for the moral or material government of the universe. Far different are the lessons which he taught us, by the revelation of his will, whether expressed in his word or impressed on his works. It is in a humble and reverent spirit that we should approach the fountain of all knowledge; and it is in a humble and reverent spirit that we should seek to drink of the living waters which ever flow from it.

Mr. JOHN TAYLOR read the Treasurer's account, already printed in the Report of the General Committee [ante, p. 882]. Prof. PHILLIPS read the programme of proceedings.

The Marquis of NORTHAMPTON moved, and Earl FITZWILLIAM seconded, thanks to the President, which being carried by acclamation, the meeting adjourned to Wednesday, Oct. 2.

GENERAL COMMITTEE.

MONDAY.

The chair being taken by the Dean of Ely, and the minutes of the last meeting confirmed, it was

resolved, that the name of Mr. John Taylor should appear as chairman of Section G, Mr. Rennie having been prevented by illness from attending the meeting.

Invitations having been read from Bath, Cambridge, and Southampton, it was resolved, on the motion of Dr. Robinson, seconded by Sir D. Brewster, that the next meeting of the British Association should be held in Cambridge. The following officers for the ensuing year were then appointed:

Sir J. F. Herschel, *President*.—Earl of Hardwicke, Bishop of Norwich, Rev. Dr. Graham, Master of Christ's College, Rev. Dr. Ainslie, Master of Pembroke College, Prof. Airey, Prof. Sedgwick, *Vice-Presidents*.—W. Hopkins, Esq., Prof. Anstey, *Secretaries*.—Mr. Babington, *Local Treasurer*.—Col. Sykes, Mr. L. Horner, Mr. Hutton, *General Auditors*.—Sir H. T. De la Beche, Dr. Buckland, Dr. Daubeny, Prof. E. Forbes, Prof. Graham, Mr. Eaton Hodgkinson, Mr. Snow Harris, Mr. J. Heywood, Mr. L. Horner, Mr. B. Hutton, Dr. Hodgkin, Sir C. Lemon, Mr. Lyell, Marquis of Northampton, Earl of Rosse, Prof. Owen, Mr. Strickland, Rev. Dr. Robinson, Sir James C. Ross, Col. Sykes, Mr. W. Thompson, Prof. Wheatstone, Mr. H. Warburton, M.P., and Mr. C. Williams, *Council*.

R. I. Murchison, Esq., and Col. Sabine, were re-elected General Secretaries; Prof. Phillips, Assistant General Secretary; and Mr. John Taylor, Treasurer.

Thursday the 19th of June, 1845, was fixed for the first day of the next meeting of the Association.

GENERAL COMMITTEE.

WEDNESDAY.

The Committee met to consider the Grants proposed by the Committee of Recommendations, which were severally adopted, as follows:

Recommendations involving Grants of Money.

	<i>Key Observatory.</i>	<i>£.</i>	<i>s.</i>	<i>d.</i>
Establishment		150	0	0
Barometograph		30	0	0

Mathematical and Physical Science.

Robinson, Rev. Dr.—British Association Catalogue of Stars	615	0	0
Robinson, Rev. Dr.—Captive Balloons	50	0	0
Herschel, Sir J.—For Magnetic and Meteorological co-operation	50	0	0
Meteorological Instruments at Edinburgh (Bills)	18	12	6
Harris, W. S. Esq.—For Reduction of Anemometrical Observations	25	0	0
Herschel, Sir J.—For Nomenclature of Stars	10	0	0
Ronalds, F. Esq.—For Electrical Experiments at Kew	50	0	0
Electrical Apparatus (Bills)	57	0	0
Balance due at Inverness	30	18	11

Chemistry and Mineralogy, including their application to Agriculture and the Arts.

Bunsen, Prof.—For Gases from Iron Furnaces	50	0	0
Daubeny, Dr.—For Preservation of Animal and Vegetable Substances	10	0	0
Kane, Dr.—For Report on Tannin	10	0	0
Kane, Dr.—On Colouring Matter	10	0	0
Hunt, R. Esq.—For Experiments on the Actinograph	15	0	0
Graham, Professor.—For Ashes of Plants grown on different soils, provided the Royal Agricultural Society join in defraying the expense	50	0	0

Geology and Physical Geography.

Oldham, T. Esq.—For Subterranean Temperature in Ireland	5	0	0
Carpenter, W. M.D.—For Microscopic Structure of Shells, &c.	20	0	0

In this Section a grant had been proposed for collecting Fossils in Cornwall, but was withdrawn, the Marquis of Northampton having undertaken to defray the expense.

Zoology and Botany.

Owen, Professor.—For Periodical Phenomena of Organized Beings	5	0	0
Jardine, Sir W.—For Exotic Anoplopera	25	0	0
Strickland, H. E.—For Vitality of Seeds	10	0	0
Portlock, Captain.—For Zoology of Corfu	10	0	0
Forbes, Professor E.—For Marine Zoology of British Isles	20	0	0
Owen, Prof.—For Marine Zoology of Cornwall	10	0	0
Hodgkin, Dr.—For Varieties of the Human Race	25	0	0

Medical Science.

Blake, J. Esq.—For Physiological Action of Medicines	20	0	0
--	----	---	---

Statistics.

Laycock, Dr.—For Statistics of Sickness and Mortality in York	40	0	0
---	----	---	---

1421 11 5

Recommendations not involving Grants of Money.

For the Reduction of Stars in the *Hydroteleste*, and the *Colum australis stelliferum* of Lacaille. Sir John Herschel, the Astronomer Royal, and Lieut. Stratford, R.N.

For investigations on the action of different bodies on the Spectrum. Sir D. Brewster.

That Col. Sabine's paper 'On the Meteorology of Toronto,' be published entire among the Reports.

That the publications of the Association be presented to the Literary and Philosophical Society of Alton, in Norwegian Lapland.

For a Report on Ozone, by Prof. Schönbein.

For Researches on the Silicification of soft Minerals, by Prof. Kuhlman, of Lille.

That Dr. Forchhammer's paper on Metamorphic Phenomena in the Rocks of Scandinavia, be printed entire among the Reports.

That Mr. West be requested to extend his analysis of Mineral Waters, and report the results.

That a representation be made to Her Majesty's Government on the importance of providing adequate funds for the development of the Cautley Collection of Fossils, and publication of an account of the same. The representation to be made by a Committee consisting of the President of the British Association, the President of the Royal Society, the President of the Geological Society, in co-operation with the President of the Royal Asiatic Society.

For a Report on the Cirripedia, by H. Goodsir, Esq.
For a Report on the British Annelida, by G. J. Johnston, M.D.

For application to Government to permit the transmission of Scientific Journals through the General Post-Office.

For Experiments on the Hydrodynamical Phenomena of the Reservoir and Fountain at Chatsworth, by—Paxton, Esq., J. Taylor, jun., Esq., J. S. Russell, Esq., and E. Hodgkinson, Esq.

For continuation of Experiments on the Strength of Materials, by E. Hodgkinson, Esq.

For Report on the fall of Rain, and the collecting and disposing of it for engineering purposes. John Bateman, Esq.

A Report on the internal constitution of Metals, by Mr. Fairbairn.

It was recommended that all Meteorological Observations involving expense to the Association should be discontinued.

It was finally recommended that the Council should invite distinguished foreigners to meet in Congress, as advertised by the President (see p. 909), to determine on the propriety of continuing the Magnetical Observations.

Mr. JOHN TAYLOR stated that the following was an account of the attendance and receipt at the York Meeting:—

Number of Tickets.	Payment.
Old Life Members 266	—
Old Annual 47	£ 57 0 0
New Life Members 146	730 0 0
Ladies' Tickets 257	257 0 0
Sectional Tickets 9	9 0 0
Books sold	133 4 0

Mr. MURCHISON moved, and Major CLERKE seconded, that Earl de Grey and the officers of the Yorkshire Hussars, who had just arrived in town, be invited to the Evening Meeting.

TO CORRESPONDENTS.—J. H.—Prob-Pudor—W.—D.—Dramatics—received.—A parcel left for M. L. D.

KNIGHT'S WEEKLY VOLUME.

THE ELEPHANT. Considered chiefly in its Relation to Man.
London: Charles Knight & Co. 22, Ludgate-street.

Now ready, small 8vo. price, 3s.
POEMS ON SACRED SUBJECTS, with Translations from the Classics.
By the Rev. R. TOMLINS, M.A.
Rivingtons, St. Paul's Churchyard, and Waterloo-place.

THE NATIONAL IMPORTANCE OF PRE-SERVING MINING RECORDS.
By T. SOPWITH, F.G.S.
Member of the Institution of Civil Engineers and of the Geological Society of France.

VOLCANIC ISLANDS, GEOLOGICAL OBSERVATIONS ON.
By C. DARWIN, Esq. F.R.S. V.P. Geol. Soc.
8vo. price 10s. 6d. cloth.
London: Smith, Elder & Co. 65, Cornhill.

This day is published, with a coloured illustration, price 1s.
Part 1 of
THE NEW PHANTASUS.
By HENRY MORLEY, Esq.
Including 'Lisette,' and the 'Dream of the Lily-bell.'
"Lisette" reads like a good translation of one of Goethe's best tales.
London: Sherwood, Gilbert & Piper, Paternoster-row.

2nd edition, in 3 vols. price 31s. 6d. cloth.
ELLEN MIDDLETON: a Tale.
By LADY GEORGIANA FULLERTON.
"Lady Georgiana Fullerton has constructed a tale of thrilling interest, by which pity and terror are alternately awakened. Many a fair reader will weep over these pathetic pages."
—*Blood's Magazine*.
Edward Moxon, Dover-street; J. Cumming, Dublin; and A. & C. Black, Edinburgh.

This day is published, price 1s., No. XXII. of The ZOOLOGIST. It contains Historical Notices of Quadrupeds formerly existing in Britain, by Sir Oswald Mosley, Bart. Observations on the new British Frog, by Professor Bell, F.R.S. Description of the new Scotch Butterfly, with figures of the male, female, and underside, by Edward Newman, F.L.S. &c. &c.
John Van Voorst, 1, Paternoster-row.

THE CHILD'S OWN BOOK.
In a very handsome volume, square 16mo. price 7s. 6d. bound with cloth.
THE CHILD'S OWN BOOK, illustrated with nearly Three Hundred Engravings. The 6th edition.
London: printed for Thomas Tegg, 73, Cheapside; and Bowdler & Kirby, Oxford-street; where may be had, just published, with entirely new Cuts, THE GIRL'S OWN BOOK, by Mrs. Child, the 15th edition.

Now ready (to be continued Quarterly), price 2s. 6d.

A GENERAL POLICE AND CONSTABULARY LIST, AND ANALYSIS OF CRIMINAL AND POLICE STATISTICS.

Compiled, by permission, from Official Documents.
London: Parker, Funnell & Parker, Military Library, Whitehall.

Now complete in 2 vols. 8vo. with 44 Engravings, price 22s. cloth.
TOM BURKE OF 'OURS.'
By HARRY LORREQUER.

"One of the most attractive works which have proceeded from the pen of Harry Lorrequer."—*Dominion Gazette*.
Dublin: William Curry, jun. & Co. London: W. S. Orr & Co. Sold by all Booksellers.

In 1 vol. 8vo. price 10s. 6d. cloth.
IRELAND BEFORE AND SINCE THE UNION with Great Britain.

By ROBERT MONTGOMERY MARTIN, Esq.
"Demonstrates the folly and iniquity of O'Connell's repeal agitation, and the falsehood of his scandalous libels upon this country."—*Birmingham Advertiser*.
London: Wm. S. Orr & Co. Dublin: Wm. Curry, jun. & Co. Edinburgh: Fraser & Co.

In 2 vols. medium 8vo. price 20s. cloth lettered.
TRAITS AND STORIES OF THE IRISH PEASANTRY. BY WILLIAM CARLETON. A new edition, with a Portrait, Autobiographical Introduction, and Notes, with numerous illustrations on Wood and Steel.

"Carleton remains master of a more diversified and extensive province than any other writer dealing with Irish subjects."—*Dublin University Mag.*
London: Wm. S. Orr & Co. Dublin: Wm. Curry, jun. & Co. Edinburgh: Fraser & Co. George-street.

A PROSPECTUS, containing the magnificent LIST OF THE SUBSCRIBERS TO THE CRITIC, a new Journal of British and Foreign Literature and Art, and Guide for the Book Club and Library and Booksellers' Circular, published on the 1st and 15th of every month, 32 pages, price 6d. only, or stamped 7d., is now ready, and will be forwarded, post paid, to any address, or a copy of THE CRITIC, as a specimen, sent to any person transmitting two postage stamps to the Office, 25, Essex-street, Strand.—N.B. Booksellers are supplied, by post, with a copy of THE CRITIC for their own use, for one quarter, on enclosing 1s. in postage stamps.

On the 1st of October, in demy 8vo. price 6s.
THE NEW QUARTERLY REVIEW, and HOME, FOREIGN, and COLONIAL JOURNAL, No. VIII.
Contents.—1. Erasmus and the Scottish Church Establishment.—2. Werner as Infidel, Romanist, and Poet.—3. Revelations of Russia; or, the Emperor Nicholas and his Empire in 1844.—4. Present State of Morocco.—5. German, English, and American Essays.—6. The Miscellaneous Works of Oliver Goldsmith.—7. State of Portugal.—8. New Zealand.—9. Present Position of England and France.—Critical Sketches, Correspondence, Literary Notices, and List of Books.
London: Smith, Elder & Co. 65, Cornhill.

THE QUARTERLY REVIEW, No. CXLVIII., is just published.

- I. The Conquest and the Conqueror.
- II. Forster on Arabia.
- III. Passages in the Life of a Radical.
- IV. Horace Walpole.
- V. On the Treatment of Lunatics.
- VI. Painting in Fresco.
- VII. Stanley's Life of Dr. Arnold.
- VIII. James, First Earl of Malmesbury.

John Murray, Albemarle-street.

THE HORTICULTURAL MAGAZINE.—Just published, price One Shilling, the INTRODUCTORY NUMBER of this New Periodical.—Orders received by all Booksellers.

Contents.—Science of Gardening—Advantage of a Garden—Annals of Floriculture—Manure and its Application—New Flowers, Fruits, and Vegetables—Landscape Gardening—Planting—Improving Estates—Grafting—Acclimatising—Irrigation—Wonderful Vegetable Productions—The Various Classes of Plants—Hybridizing Plants and Vegetables—Designs for Conservatories—Gardening for Manufacturing Towns—Construction for Fountains—Substitutes for Glass—Laws and Shrubberies—Fruit Gardens and Orchards—Geology—Soils—Horticultural Notes, &c.
T. Houlston, Publisher, 154, Strand, London.

On the 10th of October will be published, price 3s. THE CYCLOPEDIA OF ANATOMY and PHYSIOLOGY. Edited by ROBERT B. TODD, M.D. F.R.S. Part XXVI.

Contents:—Nervous Centres (concluded) By Dr. Todd.
Nervous System (Physiology) — Dr. Todd.
Ninth Pair of Nerves — Dr. G. Stokes.
Nose — J. Paget, Esq.
Nutrition — Dr. Carpenter.
Oesophagus — Dr. G. Johnson.
Optic Nerves — Dr. Mayne.
Orbit — Dr. G. Johnson.
Organic Analysis — Dr. Miller.
Illustrated with numerous Engravings.
London: Sherwood, Gilbert & Piper, Paternoster-row.

SURGERY AND MEDICINE.

THE NEW VOLUME of the 'MEDICAL TIMES' commences THIS DAY, with FOUR NEW COURSES OF PAPERS and LECTURES: the First by the celebrated PINEL, on the STRUCTURE and FUNCTIONS of the BRAIN, with new Views on Mental Diseases (translated, with Notes, by Dr. Costello, long the pupil and friend of Gall); the Second, by Mr. GUTHRIE, F.R.S. (late President of the College of Surgeons); the Third, by Dr. FORBES, of Dublin, on Select Points in the PRACTICE of MEDICINE; the Fourth, by Dr. RIGBY, F.R.C.P., Lecturer on Midwifery to St. Bartholomew's Hospital.—The 'MEDICAL TIMES' is the largest of all the Medical Journals, and contains, weekly, a complete analysis of the Original Papers in all other Medical Periodicals, English and Continental. Price 5d., Stamped 6d.; or 11. 3s. per annum for the Stamped Edition, to the Office.
J. A. Carfrae, 49, Essex-street, Strand.

13, Great Marlborough-street, October 5.

THE NELSON DESPATCHES.

DEDICATED BY PERMISSION TO H.R.H. PRINCE ALBERT.

MR. COLBURN begs to announce that the FIRST VOLUME, in 8vo. with fine Portrait, to range with 'The Wellington Despatches,' of 'THE DESPATCHES and LETTERS of ADMIRAL LORD VISCOUNT NELSON,' Edited by SIR HARRIS NICHOLAS, G.C.M.G., will be published on the 21st of October; and those who desire to obtain early copies are requested to send their orders without delay to their respective Booksellers.

HENRY COLBURN, Publisher, 13, Great Marlborough-street.

MRS. TROLLOPE'S NEW NOVEL.

Just ready, in 3 vols. post 8vo.

YOUNG LOVE.

By Mrs. TROLLOPE.

Also, just published,

ARTHUR ARUNDEL: a Tale of the English Revolution. By HORACE SMITH, Esq., Author of 'Brambletye House,' &c. 3 vols.

"One of the best of Horace Smith's works."—*Chronicle*.
"Even superior to Brambletye House."—*Sun*.

HENRY COLBURN, Publisher, 13, Great Marlborough-street.

THE ACTONIAN PRIZE ESSAY OF 100 GUINEAS, AWARDED BY THE COMMITTEE OF THE ROYAL INSTITUTION OF GREAT BRITAIN.

Just published, post 8vo. cloth, price 6s.

CHEMISTRY; AS EXEMPLIFYING THE WISDOM AND BENEFICENCE OF GOD.

By GEORGE FOWNES, Ph.D.

Lecturer on Chemistry in the Middlesex Hospital Medical School, &c.

London: JOHN CHURCHILL, Princes-street, Soho.

THE WORKS OF G. P. R. JAMES, ESQ.

On the 1st of October will be published, the Second Volume of the NEW and ILLUSTRATED EDITION of MR. JAMES'S WORKS, comprising the whole of the celebrated Historical Narrative, entitled

MARY OF BURGUNDY.

This new and attractive series commenced, on the 1st of July, with 'THE GIPSY,' (of which a Second Edition has already been required). The future Volumes will be published quarterly, each containing a complete Work, price only 8s., originally published in 3 vols. at 31s. 6d. The whole of this Edition has been carefully revised by the Author, and is got up in that superior style and agreeable size of type, &c., which renders it fit for every age, and for every library.

London: SMITH, ELDER & Co. 65, Cornhill; and may be had of every Bookseller in the Kingdom.

PERIODICALS FOR OCTOBER.

THE EDINBURGH MEDICAL AND

SURGICAL JOURNAL—No. CLXI.
Containing, among other Articles:—Dr. Gairdner's Case of Abdominal Disease—Dr. Stark on Nervous Agency—Dr. Charles Bell on the Constitution and Diseases of Women—Mr. Robertson's Medical Notes on Syria—Dr. Bennett on Inflammation—Professor Simpson on the Sex of the Child as a cause of difficulty, &c. in Human Parturition—Dr. Smith's Contributions to Midwifery, &c. &c.

The Number also contains Reviews of some important New Publications, and numerous interesting Articles of Medical Intelligence.

THE EDINBURGH NEW PHILOSOPHICAL JOURNAL.

Conducted by PROFESSOR JAMESON.
No. 74.

Among the Contents of this Number may be mentioned:—Mr. Ellis's Memoir of Mr. J. F. Gregory—Professor Forbes's Letters on Glaciers—Dr. J. J. de Tschudi on the Ancient Peruvians—Mr. Bayle St. John on the Monoids—Dr. John Davy on Guano—Professor Buckland on Arctian Wells—Professor Mac Gillivray on the Mammalia of the Counties of Aberdeen, Banff, and Kincardine, &c. &c. Scientific Intelligence—List of Patents, &c. &c.

CYCLOPEDIA OF BIBLICAL LITERATURE.

By JOHN KITTO, Editor of the 'Pictorial Bible,' &c. &c., assisted by various able Scholars and Divines. Part XV., bringing down the Contents to the Article Midian. Among the Contributors to this Part may be named:—H. A. C. Havernick, Doctor and Professor of Theology in the University of Königsberg; F. Royce, M.D. F.R.S., &c., Professor of Materia Medica in King's College, London—Rev. J. F. Denham, M.A., St. John's College, Cambridge—Rev. A. Tholuck, Doctor and Professor of Theology in the University of Halle—Rev. W. Wright, L.L.D., Trin. Coll. Dublin—Rev. J. P. Potter, M.A., Oriel College, Oxford—Rev. Baden Powell, M.A. F.R.S., &c., Savilian Professor of Geometry in the University of Oxford—Lieut.-Colonel C. Hamilton Smith, K.H. and K.W., &c. &c. Adam & Charles Black, Edinburgh; Longman & Co. London.

Price Sixpence, free by post.

The Railway Chronicle

Of Saturday last, September 28, contains

ABUSE OF RAILWAY STATISTICS—MORE GRIEVANCES—CHEAP EXCURSION TRAINS—THE POLICY OF NEW RAILWAYS—THE BOARD OF TRADE AND PROJECTORS OF NEW RAILWAYS—EVENTS OF THE WEEK.

REPORTS OF MEETINGS—Sheffield, Ashton-under-Lyne and Manchester, with the Report and Accounts—Brighton, Lewes and Hastings, with the Report and Accounts—Aylesbury with the Report and Accounts—South Devon—Sheffield and Nottingham.

PROJECTED LINES—South Wales—Sheffield and Chesterfield Junction—Cornwall Central—London and York—Bridgewater and Poole—Wiltshire and Somerset—Norwich and Ipswich—Widley and Haverley—Galway and Athlone—Newry and Enniskillen—West Cornwall—Colchester and Diss—Aylesbury and Richmond—Hereford and Gloucester—Grand Junction and Perthshire, &c. &c.

VALUE OF SHARES—Reviews from London, Liverpool, Manchester, York, Hull, and Paris, with comments on the respective Markets, and latest Prices.

PARIS WEEKLY LETTER, with the law authorizing the construction of the Rouen and Havre Line.

CORRESPONDENCE—New German Railways.
MECHANICAL IMPROVEMENTS—Smith's Expanding Wood-on-Wheel (*with Engravings*)—Mr. Rutherford on Mr. Rotherham's Anti-Friction Springs—Air Engines—Mr. Johnston on Gas Engines.

CALCULATIONS, CONTRACTS, DIVIDENDS, SCRIP, TENDERS, TRAFFIC TABLES, TRANSFERS, &c. &c.

Order The Railway Chronicle of any Newsreader.

Price Sixpence, Free by Post Sevenpence.

THE LANCET.

Of Saturday last, September 28,

THE STUDENTS' NUMBER.

CONTAINS:

ACCOUNT OF THE HOSPITALS AND SCHOOLS OF MEDICINE, for the Session of 1845-6.
Regulations of Examining Boards—
University of London.
Royal College of Physicians.
Royal College of Surgeons.
Apothecaries' Hall.

Order of attendance on Lectures, &c. for the observance of those who intend to pass both the Hall and the College.
University of Edinburgh.
University of Glasgow.
Apothecaries' Hall, Dublin.
Army Medical Service.
Naval Medical Service.
East India Medical Service.
Hospitals and Medical Schools of London.

Observations on the Use of Blister in Acute Inflammatory Diseases, and on the Effects of Bleeding, Blister, and Mercury, on the Blood, by James Turnbull, M.D.
Dislocation of the Humerus, with Fracture of its Neck, by J. H. Houghton, Esq.

On the Section of Carbox by Animals, by Robert Rigg, F.R.S.
Medical Practitioners of England.
Address to Students.
Birmingham General Hospital.

BIBLIOGRAPHICAL NOTICES:
A Treatise on the Use of the Sympathetic Nerve and its Ganglia, by T. B. Procter, M.D.
Remarks on the Efficacy of Matico, by Thomas Jeffreys, M.D.
Practical Memoirs on Cutaneous Diseases, Indolent Sores, Infebrile Ulceration, Scrofula, Scorbatus, &c. by Francis Forster, Esq. M.R.C.S.

MEETINGS:
South-Eastern Branch of the Provincial Medical and Surgical Association.
The Government Medical Reform Bill—Public Meetings of the Medical Profession—
At Chelsea, Hereford, Hastings, Kidderminster, Norwich, in Surrey.

HOSPITAL REPORTS:
King's College Hospital—Cases of Hydrocele treated with Iodine Injection.—Encysted Hydrocele of the Spermatic Cord.
News of the Week.
Apothecaries' Hall.
Correspondents, &c. &c.

London: John Churchill, Princes-street, Soho; and to be had of all Booksellers and Newsreaders.

MR. TATE'S NEW WORKS.

This day is published, in 1 vol. 12mo. 4s. cloth.

THE COUNTING-HOUSE GUIDE to the

Higher Branches of Calculations.

By WILLIAM TATE, Author of the 'Modern Cambist,'

Also, 'Commercial Arithmetic,' &c.

Also, 'The Author's

Part II., forming a Supplement and Key to the

above, 6s. cloth.

London: Effingham Wilson, 18, Bishopsgate-street Within; Longman & Co., and all Booksellers.

RAILROADS.—The Public are informed that

A New Edition is just issued of BETTIS'S RAILWAY AND COMMERCIAL MAP OF ENGLAND AND WALES. In addition to the distinguishing features which have rendered this Map perhaps the most popular of the present day, the New Edition has the various Railway Stations conspicuously shown, and their names engraved in a character differing from the rest of the work. The new lines which have passed the legislature are also laid down, and the whole has been executed with scrupulous attention to accuracy. Size 3 ft. by 2 ft. 6 in. Price on cloth, in case, 7s.; on roller, and varnished, 10s. 6d.

London: J. Betts, 115, Strand; Simpkin & Co.; Whittaker & Co.; Hamilton & Co. Liverpool; G. Philip.

LIFE ASSURANCE.—The following are specimens

of the low Rates of Premium charged by the

AUSTRALASIAN COLONIAL AND GENERAL LIFE ASSURANCE AND ANNUITY COMPANY.

Age 20 30 40 50 60

Ann. Prem. 1 10 3 2 0 7 2 15 3 1 4 1 8 6 3 9

and of these Premiums one-third may remain unpaid, in the hands of the assured, at interest, to be deducted from the sums assured, when they become claims.

Persons assured for an amount of 500l. for the whole term of life, participate in the profits of the Company. Subscribed Capital 500,000l.

For forms of proposal and other particulars, apply at the Office, 125, Bishopsgate-street, corner of Cornhill, City.

VICTORIA LIFE ASSURANCE COMPANY.

Trustees: Sir Jas. Duke, Ald. M.P. Chairman; Benj. Hawes, Esq. Dep. Chairman; Benj. Bernard, Esq. Charles Baldwin, Esq.

Particular advantages are offered by this Company. Thus—Parties assuring the lives of others may make their policies secure, notwithstanding the life assured may go out of the limits of Europe, without the necessary permission of the Directors having been previously obtained.

Credit of half the premium for the first five years allowed on policies effected for the whole term of life.

On policies of five years' standing, half the amount paid, after the first year's premium, may be borrowed thereon by the Assured.

Advances made to Assurers on real or undoubted personal security, for terms of years, re-payable by instalments.

Attention is particularly requested to the detailed prospectuses of the Company, which may be obtained at the Office, 18, King William-street, City, or by letter, addressed to the Secretary, WILLIAM RATRAY, Actuary and Secretary.

BRITISH MUTUAL LIFE ASSURANCE SOCIETY, 17, New Bridge-street, Blackfriars.

Directors.

John Atkinson, Esq., Well-street, Hackney.

Thomas Hamber, Esq., Barns-Hackney.

Joshua Burgess, Esq., Park-st., Grosvenor-square.

Geo. Godwin, Esq., F.R.S. F.S.A. Felham-crescent, Brompton.

Capt. C. Twissleton Graves, Army and Navy Club.

Nuttall Gray, Esq., Hackney.

Consulting Actuary—William Ratray, Esq., King William-street, City.

THE GREATEST PRESENT BENEFIT, AND THE GREATEST FUTURE ADVANTAGES to those who attain the average duration of Life are secured to the Assured in this Office, a combination of advantages presented by no other Office.

The principle adopted in the distribution of the profits is peculiar to this office, and is at once safe, equitable, and favourable to young and good lives. The surplus is reserved for those Members who survive the period of the term, and the interest is accumulated interest at 5 per cent. shall amount to the sums assured, and may be received in cash, or applied in the reduction of the future premiums or to the increase of the sum assured.

The Premiums are deducted from the Government experience, and are accurately adjusted to the several ages. At early and middle life they are about one-fourth lower than at most other offices.

All the objects of Life Assurance may be effectually accomplished at this Office.

Every facility and information afforded on application at the Office, 17, New Bridge-street, Blackfriars.

CHARLES JAMES THICKE, Resident Secretary.

UNITED KINGDOM LIFE ASSURANCE COMPANY, 5, Waterloo-place, Pall Mall, London.

Established by Act of Parliament in 1834.

Division of Profits among the Assured.

Honorary Presidents.

Earl of Errol.

Earl of Courtown.

Earl Leven and Melville.

Earl of Salisbury.

Earl of Stair.

Directors—Jas. Stuart, Esq. Chairman.

Hannibal de Castro, Esq. Deputy Chairman.

Samuel Anderson, Esq. Charles Graham, Esq.

Hamilton Blair Avarne, Esq. F. Charles Maitland, Esq.

Edw. Boyd, Esq. Resident Secretary.

E. Lennox Boyd, Esq. Asst. Secy.

Resident Secretary—F. H. Thomson, Esq.

Charles Downes, Esq.

Surgeon—F. Hale Thomson, Esq. 48, Berners-street.

This Company, established by Act of Parliament, affords the most perfect security in a large paid-up Capital, and in the great success which has attended its commencement in 1834, ITS ANNUAL INCOME BEING UPWARDS OF 72,000l.

In 1841, the Company declared an addition to the Shareholders of one-half of their Stock, and also added a bonus of 25 per cent. per annum on the Sum assured to all Policies of the Participating Class from the time they were effected.

The bonus added to Policies from March, 1834, to the 31st December, 1841, is as follows:

Sum Assured. Time Assured. Sum added to Policy.

£5000 6 Years 10 Months £263 6 8

5000 5 Years 600 0 0

5000 4 Years 400 0 0

5000 3 Years 200 0 0

The premiums, nevertheless, are on the most moderate scale, and only one-half need be paid for the first five years, where the Insurance is for life.

Every information will be afforded on application to the Resident Directors, Edward Boyd, Esq. and E. Lennox Boyd, Esq., of No. 5, Waterloo-place, Pall Mall, London.

COMMERCIAL AND GENERAL LIFE ASSURANCE, ANNUITY, FAMILY ENDOWMENT AND LOAN ASSOCIATION.

OFFICES, 112 and 113, CHEAPSIDE, LONDON.

H. G. WARD, Esq. M.P. Chairman.

LIVES ASSURED on every known system.

LOANS GRANTED repayable by instalments.

ANNUITIES immediate and deferred.

ENDOWMENTS for Children payable at 14 or 21.

The remaining Shares will continue on sale until the 25th of the next month.

Interest allowed on the paid-up capital, 5 per cent. per annum payable half-yearly.

Applications for Shares and Prospectuses to be made to FREDERIC LAWRENCE, Resident Director.

Offices, 112 & 113, Cheapside.

BRITANNIA LIFE ASSURANCE COMPANY, 1, Princes-street, Bank, London.

Empowered by Special Act of Parliament, IV. Vict. cap. IX.

HALF CREDIT RATES OF PREMIUM.

Persons assured according to these rates are allowed credit (without security) for half the amount of the first year's premium.

Premiums, paying interest thereon at the rate of Five per Cent. per Annum, with the option of paying off the Principal at any time, or having the amount deducted from the sum assured when the Policy becomes a claim.

Policies may thus be effected at lower rates than are generally required for the term of seven years only; whilst the holders have the security for their families, in case of their death, whenever death may happen, as if they paid double the amount of premium, which would be charged for assurances effected in the usual way.

Annual Premium required for an Assurance of 100l. for the whole Term of Life.

Age. Half Premium for 7 years. Whole Premium after seven years.

£80 £1 5 0 £2 5 0

30 1 4 11 0 3 10 0

40 1 9 2 0 3 14 0

45 1 10 0 3 16 0

50 2 0 0 3 18 0

55 2 12 0 3 18 0

60 3 6 0 4 13 0

PETER MORRISON, Resident Director.

ACHROMATIC MICROSCOPES.—Micro-

scopic investigation being an essential feature in Physio-

logical study, the research can only be satisfactorily developed

by the aid of Achromatic Lenses, which, by their superior

character has precluded such from general use. A Microscope

can now be supplied, most effectively constructed with jointed

pillars and tripod stand, rack and slide motion adjusted, two

sets of achromatic object glasses, two eye-pieces, forming a

combination of five magnifying powers, varying from 30 to 250

times linear, or 300 to 62,500 superficial measurement, clearly

defining the markings of the most difficult test objects, a con-

densing lens for opaque objects, plate of diaphragms, six objects

mounted in balsam, &c. &c., the whole neatly packed in mahogany

price Eighty Pounds.

A. ABRAHAM, OPTICIAN, &c. 20, LORD-STREET, LIVER-

POOL; and Abraham & Dancer, 13, Cross-street, King-street,

Manchester. ACHROMATIC OBJECT GLASSES adapted to

Microscope A. Doublet, low power, cone and box, 12l.;

Triplet, high power, cone and box, 21l. 7s.

The customary discount allowed to the Trade.

Just published, A Coloured Lithographed Micro-

scopic Drawing of the 'ACARUS SCABIEI,' a high insect, as

seen through the Achromatic Microscope with a linear power

of 200. Price 12s. 6d.; by post, 15s. 10d.

20, Lord-street, Liverpool.

MOULD CANDLES TO BURN WITHOUT

SNUFFING.—KEMPTON'S PATENT.—These candles

are really improved, and do not require snuffing; they burn

longer, and are cheaper than any other candle; the flame

steady and brilliant. No metallic or deleterious matter is used

in the manufacture. Price 6d. per lb. Sold by G. R. Pariah,

agent for exportation, 37, Upper Thames-street, and all Grocers

and Oilmen; and at the Manufactory, Old Bargehouse, Christ-

church, Surrey.

ROWLAND'S MACASSAR OIL.—Under the

Patronage of Her Majesty, H.R.H. Prince Albert, the

Royal Family, and several Courts of Europe.—THIS ELEGANT,

Fragrant, and PLEASANT OIL, in its pure and unadulterated

state, and beautiful qualities, is unequalled over the whole world.

It preserves and reproduces the hair, even at a late period of life;

prevents it from turning grey; or if so changed, restores it to its

natural colour; frees it from snuff and impurities; gives it a soft,

silky, curl, and gloss, and retains its curl and other decorative

form uninjured by the variations of the atmosphere, or the

effects of the crowded atmosphere of the theatre, which is abund-

antly proved by the numerous testimonials, which may be

seen at the Proprietors'. These advantages are enhanced by the

gratifying fact, that it preserves its virtues unimpaired by the

change of climate, and is alike in use from the frigid to the

torrid zone—from the assemblies of St. Petersburg to those of

Calcutta and the remote East. To children it is especially re-

commended as forming the basis of A BEAUTIFUL HEAD

OF HAIR. Price 3s. 6d.; 7s.; Family Bottles (equal to four

small), 10s. 6d.; and double that size, 21s. per bottle.

CAUTION.—Each genuine bottle has the words 'ROWLAND'S

MACASSAR OIL' engraved in two lines on the wrapper, and

on the back of the Envelope 1,500 times, containing 29,025 letters.

Be sure to ask for ROWLAND'S MACASSAR OIL. All

genuine bottles are marked 'TATTOOED'. Sold by all Grocers

and Chemists. A ROWLAND & SON, 20, Hatton-garden, LONDON; and by

Chemists and Perfumers.

Removed from Birmingham to 19, Berners-street, Oxford-street,

London.

Just published, The Thirteenth Edition, price 2s. 6d.; free by

post, 3s. 6d.

THE SILENT FRIEND ON NERVOUS DEBILITY, CONSTITUTIONAL WEAKNESS, &c. By R. and

L. PERRY & Co., Surgeons, London. Published by the Authors,

at their residence; also by Strange, 21, Paternoster-row,

Noble, 109, Chancery-lane; Crocker, 1, Milford-lane, Strand;

Ward, 103, Strand (opposite Exeter Hall); Gordon, 146, London-

street, near Finsbury; and by all the principal Booksellers and

Druggists. These pills are perfectly free from mercury and other

deleterious drugs, and may be taken with safety without inter-

ference with, or loss of time from business, and can be relied

upon as a healthy state of organization. Sold in bottles, price 11s.

and 6s. 6d. per bottle. Sold in boxes at 3s. 9d., 4s. 6d., and

11s., by all Medicine Vendors.

Messrs. Perry & Co. may be consulted daily at their resi-

dence, 19, Berners-street, Oxford-street, from 11 till 3, and from

8 till 6. On Sunday, from 10 till 12.

RECENTLY PUBLISHED BY WHITTAKER & CO. AVE MARIA-LANE, LONDON.

COLLIER'S NEW EDITION OF SHAKESPEARE'S WORKS.

Just published, in 8 vols. 8vo. cloth lettered, price 42. 16s., with a fac-simile of the Portrait of Shakespeare in the first folio.

THE WORKS OF SHAKESPEARE,

Comprising the Plays and Poems. The Text formed from an entirely new collation of the old editions: with the various Readings, Notes, a Life of the Poet, and a History of the early English Stage.

By J. PAYNE COLLIER, Esq.

"Mr. Collier has formed his text from an entirely new collation of the old quartos, for which facilities, hitherto out of any commentator's reach, were supplied by the liberality of the Duke of Devonshire and Lord Francis Egerton."—*The Examiner*.

"Mr. Collier has just reason to feel proud at having given to the press what may justly be esteemed a classic edition of the immortal works."—*Morning Herald*.

In 16 vols. with 814 Engravings,

CUVIER'S ANIMAL KINGDOM.

Translated by E. GRIFFITH, F.A.S., and Others.

The small remaining stock reduced to the following prices:

	Formerly	Now
Demy 8vo.	£26 8 cloth, 12 guineas.	
Royal 8vo. coloured	51 12 "	25 guineas.
Royal 4to. India proof ..	52 16 "	24 pounds.

"This truly national work contains nine thousand pages of letter-press, eight hundred and fourteen engravings, is unique in its kind, and has undergone most satisfactorily a very severe ordeal of criticism."

BEDE'S WORKS—BY DR. GILES.

In 6 vols. 8vo. price 32. 3s. cloth lettered,

THE LIFE AND MISCELLANEOUS WORKS OF VENERABLE BEDE,

For the first time collated with the MSS. The memoir written, and the works edited and translated, by the Rev. J. A. GILES, D.C.L., late Fellow of C.C.C., Oxford.

CONTENTS OF THE SIX VOLUMES.—Vol. I. A Life from new and authentic Sources.—The Poems.—Letters and Moral Tracts. Vols. II. and III. Ecclesiastical History, Latin and English. Vol. IV. Historical Tracts and Biographical Memoirs, Latin and English. Vol. V. The Homilies, Latin. Vol. VI. The Scientific Works and Appendix, Latin and English.

THE BIBLICAL COMMENTARIES.—The Old Testament, 3 vols., New Testament, 3 vols., comprising Vols. VII. to XII., and completing the work, are progressing.

* * The volumes will on no account be sold separately, and only 250 of the complete work will be printed for general sale.

THE FOSSIL REMAINS OF THE ANIMAL KINGDOM.

By EDWARD PIDGEON, Esq.

Illustrated with 50 engravings. Formerly published as a supplementary volume to Griffith's translation of 'Cuvier's Animal Kingdom.' Second edition, demy 8vo. 544 pages, with 50 illustrations, 18s. boards.

VALPY'S GREEK TESTAMENT.

Fourth edition, with parallel references, and other illustrations, 3 vols. 8vo. price 22. cloth,

GREEK TESTAMENT,

With English Notes. By the Rev. E. VALPY, B.D.

"This Greek Testament is the most valuable of any that has yet been published with critical and philological apparatus, especially for students who wish to purchase only one edition."—*Horne's Introduction to the Bible*.

Fourth Year, fcap. 8vo. price 9s. cloth,

DODD'S PEERAGE, BARONETAGE, KNIGHTAGE, and TITLED CLASSES of Great Britain and Ireland.

Alphabetically arranged, and containing, in addition to the usual contents of a Peerage, the Junior Branches of the Nobility, Knights, Bishops, Judges, Privy Counsellors, &c.

By C. R. DODD, Esq.,

Author of 'The Parliamentary Pocket Companion,' &c.

Since the last edition, the occurrence of 421 deaths, 203 new creations, 136 marriages, together with the mass of promotions attendant on the Chinese and Afghan wars, have rendered an entire revision of the work necessary from the first article to the last.

"The arrangement of this volume is complete; the care, diligence, and accuracy with which it has been executed fully realize the original and judicious plan of the work; it gives so much of genealogy as possesses historical interest, at the same time answering the purposes of a biographical dictionary, a family record, and an official register."—*Times*.

NEW SCHOOL BOOKS.

OLLENDORFF'S METHOD—LATIN.

Just published, 12mo. price 3s. cloth lettered,

FIRST LATIN GRAMMAR AND EXERCISES ON OLLENDORFF'S METHOD.

By WILLIAM HENRY PINNOCK,
Of Corpus Christi College, Cambridge.

"This is an adaptation of the celebrated Ollendorff's method of teaching living languages to the dead ones, and a very slight inspection of Mr. Pinnock's Latin Grammar will be sufficient to show that the attempt has been successfully made. The first steps in the acquisition of Greek and Latin are to the youthful student so irksome, so painful, so uncertain, that a plan which facilitates his progress by simplifying his labour, is deserving of all encouragement. The pupil and the tutor are alike benefited by its application. Mr. Pinnock has accomplished these important objects in the little volume before us; and we have his assurance that he has long employed the Ollendorff method with considerable advantage among his own pupils."—*John Bull*.

NIBLOCK'S New and Improved LATIN and ENGLISH and ENGLISH and LATIN DICTIONARY.

In Two Parts. The 2nd edition, considerably improved, square 12mo. 9s. bound.

Part I. containing the Latin and English Dictionary, sold separately, 5s. 6d. bound.

* * This Work is an entirely new compilation, on the plan of Schrevelius' Greek Lexicon. Amongst many other improvements, all irregular preterites, and other tenses of verbs, and the anomalous cases of heteroclitic nouns (1000 of which, at the least, are not in any Dictionary yet published), and all irregularly-formed participles have their radix or source given.

FULTON and KNIGHT'S PRONOUNCING and EXPLANATORY DICTIONARY of the ENGLISH LANGUAGE,

Greatly improved, the pronunciation ascertained by a new and simple notation. To which are prefixed, the Principles of English Pronunciation, and the Elements of Reading; with copious Lists of Greek, Latin, and Scripture Proper Names, &c. Square 12mo. 4s. 6d. bound and lettered.

BUTTMANN'S GREEK GRAMMAR.

New Edition, enlarged 8vo. price 13s. 6d. boards,

DR. PHILIP BUTTMANN'S INTERMEDIATE and LARGER GREEK GRAMMAR.

Translated from the German: with a Biographical Notice of the Author. Edited by Dr. CHARLES SUPP.

"The fault which in former editions was often found as to the meagreness in the syntactical part of Buttmann's Greek Grammar may be said to be obviated in this new edition, and it thus fulfils all reasonable claims a teacher of the Greek idiom can fairly prefer."—*Preface to New Edition*.

VALPY'S GRADUS—ENLARGED EDITION.

WHITTAKER'S Improved Edition of VALPY'S GRADUS AD PARNASSUM.

With a translation and the formation of the words.

6th edition, royal 12mo. price 7s. 6d. bound.

This Gradus was composed by the learned Editor for those Teachers who considered that the original Gradus was defective in not giving a simple translation of the words, and redundant in the number of synonyms and epithets, and also in giving the phrases and verses. This edition has been augmented by the addition of upwards of 3000 new articles: the prosody has been carefully revised; tables of the quantities of final syllables of nouns and verbs in inflexion added; and a variety of other improvements introduced.

PYPER'S GRADUS;

Or a Dictionary of Poetical Latin Synonyms, Epithets, Verses, and Phrases. In Latin, without translation. New edition, with considerable additions and amendments. By W. PYPER, A.M., one of the Masters of the High School, Edinburgh. In 1 thick vol. 12mo. price 7s. bound.

This work is the original Gradus, corrected by various Professors of the Edinburgh University, and more recently by Professor Pyper. It comprises a large collection of words, and abundant examples of synonyms, epithets, phrases, and verses; and is used in various first-rate schools.

HINCKS' GREEK-ENGLISH SCHOOL LEXICON:

Containing all the Words that occur in the Books used in most schools and collegiate courses. By the Rev. THOMAS D. HINCKS, L.L.D. M.R.I.A., late Master of the Classical School in the Royal Belfast Institution. Royal 12mo. price 10s. 6d. bound. 2nd edition, much enlarged and improved.

* * In this edition several additional words have been included, especially those of the great historians, Herodotus and Thucydides; the Odyssey of Homer; Anacreon; the Olympos of Pindar; some Idylls of Theocritus; the Nubes of Aristophanes; the Septuagint; and some others, as will be seen by the Index. These, in addition to the works in the former edition, will include illustrations of the language at different periods and in different dialects. Various other extensive alterations and improvements have also been made.

SOPHOCLES,

Greek Text, with English Notes, Critical and Explanatory.

Adapted to the Use of Schools and Universities. By T. MITCHELL, A.M., Editor of 'Aristophanes,' &c. &c. Published in separate Plays. *Edipus Coloneus*, 5s.—*Edipus Tyrannus*, 7s.—*Antigone*, 5s.—*Electra*, 5s.—*Trachiniae*, 5s.—*Philoctetes*, 5s.—*Ajax*, 5s. To form hereafter 2 vols. 8vo.

THE CHEAPEST GEOGRAPHY FOR CHILDREN.

With 10 well-engraved Maps, price 9d.

WHITTAKER'S Improved Edition of PINNOCK'S CATECHISM of GEOGRAPHY,

Greatly enlarged and remodelled, by G. H. SMITH, Esq., and illustrated by 10 Maps, price 9d. sewed.

"Considering the number and excellence of its illustrations, and the quantity of information conveyed in it, this is certainly the cheapest school-book we know of. It is admirably arranged by one evidently profoundly acquainted with his subject, and has been remodelled to the scientific view now taken of the subject."—*Monthly Magazine*.

The CATECHISM, on the Original Plan (corrected to the present time), and illustrated with Nine Maps, can also be had, price 9d.

N.B.—A Detailed CATALOGUE of Messrs. WHITTAKER & CO.'s SCHOOL BOOKS can be had Gratis of any Bookseller by Application.

Printed by JAMES HOLMES, of No. 4, New North-street, in the county of Middlesex, printer, at his office No. 4, Took's Court, Chancery-lane, in the parish of St. Andrew, in the said county; and published by JOHN FRANCIS, of No. 14, Wellington-street North, in the said county, Publisher, at No. 14, in Wellington-street aforesaid; and sold by all Booksellers and News-vendors.—Agents: for SCOTLAND, Messrs. Bell & Bradburn, Edinburgh;—for IRELAND, J. Cumming, Dublin.—Saturday, October 5, 1864.